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Commission on State Mandates

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VIA DROP BOX
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Commission on State Mandates
980 Ninth Street, Suite 300
Sacramento, CA 95814

Dear Ms. Halsey:

Re: Response to Request for Additional Briefing Regarding Impact of *Department of Finance v. Comm'n on State* Mandates (2016) 1 Cal.5th 749 on Test Claims 10-TC-01 (San Mateo County), 10-TC-02 (Alameda County), 10-TC-03 (Santa Clara County), and 10-TC-05 (City of San Jose)

The San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) files this supplemental brief to address the impact of the Supreme Court's decision in *Department of Finance v. Comm'n on State Mandates* (2016) 1 Cal.5th 749, *as modified on denial of rehearing* (Nov. 16, 2016) (*Department of Finance*) on Test Claims 10-TC-01 (San Mateo County), 10-TC-02 (Alameda County), 10-TC-03 (Santa Clara County) and 10-TC-05 (City of San Jose) (collectively "Test Claims" and "Claimants"). The Supreme Court's opinion was limited to a narrow issue: whether three conditions concerning trash receptacles and inspections in the Los Angeles Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit (LA Permit) were required controls that would reduce the discharge of pollutants to the "maximum extent practicable" (MEP), as required by the Clean Water Act. (*Id*. at p. 757, citing 33 U.S.C. § 1342(p)(3)(B).)

Unlike the LA Permit, the San Francisco Bay Regional Water Board's municipal regional stormwater permit (MRP) included findings that the permit was based entirely on federal law and the permit terms were "necessary" to meet MEP. The Supreme Court noted the absence of these findings in the LA Permit and further opined that such findings would be entitled to deference. (*Department of Finance, v. Comm'n on State Mandates , supra*, 1 Cal.5th at p. 768.) In addition, the Supreme Court's primary focus was the construction of MEP. It did not evaluate any of the following legal questions or factually distinct circumstances:

1. "Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate." (*Id.* at p. 768.) Such findings are "case specific, based among other things on factual circumstances. (*Ibid.,* fn. 15.)
2. The LA permittees and Los Angeles Water Board agreed that each of the three challenged requirements were a new program or higher level of service (*Department of*

Finance v. Comm'n on State Mandates, supra, 1 Cal.5th at p. 762) and none were contained in previous permits. (*Id.* at pp. 760-61.)

3. There was no evaluation of whether the contested provisions were required under a Total Maximum Daily Load (TMDL) or other federal mandate.
4. None of the three requirements evaluated by the Supreme Court were terms U.S. EPA included in any EPA-issued MS4 NPDES permits. (*Id.* at pp. 761 and 771-72.)
5. The Supreme Court did not evaluate whether the local government had the authority to levy fees or assessments pursuant to Government Code section 17556, subdivision(d). (*Id*. at p. 761 [acknowledging that the Commission found that the local governments were not entitled to reimbursement because they had authority to levy fees to pay for the required inspections, an issue the Supreme Court did not review].)
6. The Supreme Court did not consider an exceptions to unfunded state mandates, where stormwater capture and discharge requirements are generally applicable and do not impose "unique" obligations on municipal entities.
7. The Supreme Court did not evaluate the permittees' voluntary participation in the NPDES program.

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

Background

The Clean Water Act employs the strategy of prohibiting the discharge of any pollutant from a point source into waters of the United States unless the discharger of the pollutant(s) obtains an NPDES permit pursuant to section 402 of the Clean Water Act. Congress's stated its intention as follows: "it is the national goal that the *discharge of pollutants into the navigable waters be eliminated* by 1985." (33 U.S.C. § 1251 [emphasis added].)[1]

The 1987 amendment to the Clean Water Act includes section 402(p), which specifically addresses NPDES permitting requirements for stormwater discharges from MS4s. Section 402(p) *prohibits the discharge* of pollutants from specified MS4s to waters of the United States *except as authorized* by an NPDES permit and identifies two substantive standards for MS4 stormwater permits. MS4 permits (1) "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers[ ]" and (2) "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or State determines appropriate for the control of such pollutants." (Clean Water Act § 402(p)(3)(B)(ii-iii). See also 55 Fed. Reg. 47990, 47995 ["Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit"].)

On November 16, 1990, USEPA published regulations addressing stormwater discharges from MS4s. (Vol. 55 Federal Register (Fed. Reg.) 47990 *et seq.* (Nov. 16, 1990).) The regulations establish minimum requirements for MS4 permits and generally focus on the requirement that MS4s implement programs to reduce the amount of pollutants found in stormwater discharges to the maximum extent practicable. However, the regulations also require the MS4's program to

[1] The Regional Water Board Response to Test Claims filed May 17, 2011, (2011 Response) briefs the Clean Water Act history and permit compliance with these provisions on pages 7 through 16.

include an element to detect and remove illicit discharges and improper disposal into the storm sewer. (40 C.F.R. § 122.26, subd. (d)(2)(iv)(B).) "Illicit discharges" defined in the regulations is the most closely applicable definition of "non-storm water" contained in federal law, and the terms are often used interchangeably. The State Water Board has concluded that "U.S. EPA added the illicit discharge program requirement with the stated intent of implementing the Clean Water Act's provision requiring permits to 'effectively prohibit non-storm water discharges.'" (Att. 1, State Board Order WQ 2009-0008 (County of Los Angeles), p. 4.) The importance of this history is to emphasize that the starting point for the discussion of MS4 permits is that *all discharges of any substance other than stormwater are prohibited - completely*.

In response to the Clean Water Act amendments, the San Francisco Regional Water Board issued municipal stormwater Phase I permits to the entire county-wide urban areas of Santa Clara, Alameda and San Mateo counties. Between 1987 and 2009, when the San Francisco Regional Water Board issued its municipal regional stormwater permit R2-2009-0074 (the MRP), those permits were updated several times to take into account EPA guidance, and recognize existing "on-the-ground" efforts, such as street sweeping programs and standard housekeeping measures at corporation yards. The 2009 MRP regulated 76 municipalities and local agencies (permittees) in the San Francisco Bay region. Both the MRP and the San Francisco Bay Regional Board's Water Quality Control Plan "effectively prohibit non-stormwater discharges into the storm sewers," as required by the Clean Water Act. (Clean Water Act § 1342, subd. (p)(3)(B)(ii); MRP Fact Sheet at p. App. I-16; and Basin Plan § 4.14.1.2.)

No permittee has demonstrated inability to fund the requirements, and in fact, most have funded their stormwater programs via fees on inspections or redevelopment. Annual Reports submitted by the permittees demonstrate compliance.

1. The San Francisco Bay Regional Water Board's Findings Regarding Implementation of Federal Law and Maximum Extent Practicable Standard Are Entitled to Deference.

An essential underpinning of *Department of Finance* is the Supreme Court's determination that the LA Permit had as its roots both federal and State law. The Los Angeles Water Board made no finding that the permit requirements were necessary to implement the MEP standard. (*Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 768.) Instead, the Los Angeles Water Board found only that the permit was consistent with or within the federal standard.

In contrast, when issuing the MRP, the San Francisco Regional Water Board implemented *only federal law*: "[I]t is entirely federal authority that forms the legal basis to establish the permit provisions." (MRP Fact Sheet at p. I-13. See also p. I-12 ["[T]his Permit implements federally mandated requirements under Clean Water Act section 402, subdivision (p)(3)(B)"] and p. I-15 ["The Basin Plan comprehensive program requirements are designed to be consistent with federal regulations (40 C.F.R. Parts 122-124) and are implemented through issuance of NPDES permits to owners and operators of MS4s"].) Findings No. 9, 10 and 11 of the Permit and Fact Sheet Section V (Legal Authority) set forth the Board's regulatory basis for issuing the Permit. Collectively, these findings make it clear that the Board intended to and did rely solely on federal law in issuing the Permit.

The 2011 Response describes how each of the contested provisions meets the MEP standard. (2011 Response, pp. 10-12.) In *Department of Finance*, the Supreme Court held that, "Had the Regional Board found when imposing the disputed permit conditions, that those conditions were

the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate." (*Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 768.) Unlike the LA MS4 permit, the MRP made specific findings demonstrating that the permit provisions were necessary to implement the maximum extent practical standard:

> Order No. R2-2009-0074 is an *essential mechanism* for achieving the water quality objectives that have been established for protecting the beneficial uses of the water resources in the San Francisco Bay Region.

(MRP, p. App I-11, emphasis added.) As the Supreme Court held, "deference to the board's expertise in reaching that finding would be appropriate." (*Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 768.)

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

This interpretation is consistent with comments on a draft version of the MRP, in which U.S. EPA staff noted that they supported the inclusion of detailed requirements in the Permit. Specifically, U.S. EPA stated that "[o]ur municipal audits of recent years have identified lack of detailed requirements as a frequent shortcoming in previously issued-permits in our Region." (Email from Eugene Bromley, EPA, to MRP, "Comments on December 27 Draft MRP", 2/29/2008/d.) These comments are consistent with the finding in *San Francisco Baykeeper v. Regional Water Quality Control Board, San Francisco Bay Region* (2003) San Francisco Superior Court No. 500527, Order Granting Petition for Writ of Mandate and Statement of Decision. Although not precedential, this case held that the MRP must be modified to include type, interval and frequency sufficient to yield data representative of the monitored activity.

2. The Contested Provisions of the MRP Are Not New Programs or Higher Levels of Service and/or Were Proposed By Claimants.

Section 6 of article XIII B of the California Constitution states, "[w]henever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service…." In *Department of Finance*, the parties did not dispute that each challenged requirement was a new program or higher level of service. (*Dept. of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 762.) Here, by contrast, the San Francisco Bay Water Board has demonstrated that the contested provisions of the MRP were not new programs or higher levels of service and in some cases were proposed by the permittees. (See 2011 Response, pp. 25-27 [prior permits include management plans, monitoring programs and annual reports that demonstrate permittees had already implemented numerous provisions]; pp. 30-42 [Provision C.8 does not require new programs or higher levels of service]; 49-53 [Provision C.10 does not require new programs or higher level of service]; 55-56 [Provisions C.11 and C.12 do not require new programs or higher level of service]; 59-63 [Provision C.2 does not require new programs or higher levels of service].)

A. Not a New Program

A program is defined as "a program which carries out the 'governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.'" (*County of Los Angeles v. Comm'n on State Mandates* (2003) 110 Cal. App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) A program is "new" if the local government had not previously been required to institute it. (*Ibid*.) Here, even if each of the challenged provisions could be considered a "program," none meets this definition of "new." The permittees had been permitted under the NPDES program for well over a decade at the time the MRP was adopted. (See MRP, at pp. 3-4 [listing prior permits for all municipalities] and 25-27 [prior permits include management plans, monitoring programs and annual reports that demonstrate permittees had already implemented numerous provisions].) Permittees' prior permits contained requirements for implementing mercury, PCBs, trash reductions and municipal operations. (See 2011 Response, pp. 30-42 [C.8]; 49-53 [C.10]; 55-56 [C.11 and C.12]; 59-63 [C.2].)

B. Not a Higher Level of Service

The changes to the requirements of prior permits (e.g. increased detail or specificity) are also not a higher level of service, both because equivalent changes are applicable to non-municipal permittees, as discussed in Section 6, below, and because they are merely refinements of existing requirements. (See *County. of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal.App.4th at pp. 1189-1190].) A higher level of service is not simply any increase in costs. "If the Legislature had intended to continue to equate 'increased level of service' with 'additional costs,' then the provision would be circular: 'costs mandated by the state' are defined as 'increased costs' due to an increased level of service, which, in turn would be defined as 'additional costs.'" (*County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal. App.4th at p. 1191.) Costs for purposes of Section 6 do "not equal every increase in a locality's budget resulting from compliance with a new state directive." (*Id.* at p. 1194; accord *San Diego Unified School Dist. v. Comm'n on State Mandates* (2004) 94 Cal.4th 859, 876-877.) Nor does every increase in specificity about where to direct costs amount to a higher level of service. (See *Id.*, at p. 1194 [requiring that local law enforcement agencies devote some of their training budgets to domestic violence training was not higher level of service].)

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

In this case, any costs arising from MRP's requirements do not result from a "new" program. Nor do they result from a "higher level of service," because the State has not shifted its own responsibilities to local agencies and the permittees are not "ill-equipped" to allocate funding to stormwater control. The permittees' own documentation indicates that they have always been responsible for maintaining their trash collection services, storm drain system, etc. (See 2011 Response, pp. 25-27 [general]; 30-42 [C.8]; 49-53 [C.10]; 55-56 [C.11 and C.12]; 59-63 [C.2].) Moreover, in rebutting the San Francisco Bay Regional Water Board's arguments that the challenged provisions impose a higher level of service, claimants do not contend that the state has shifted any costs to local government or that they have been saddled with entirely new obligations to control pollution in stormwater. (See Written Rebuttal Comments to Response to Test Claims 10-TC-01 and 10-TC-02 (Sept. 16, 2011), at pp. 10-11.] Without any burden shifting from the state to municipalities, mere direction from the San Francisco Bay Regional Water Board that the municipalities reallocate some of their resources in a particular way does not amount to a higher level of service. (See *County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal.App.4th at p. 1194.) "Loss of flexibility does not, in and of itself, require the [local agencies] to expend funds that previously had been expended by the State." (*Ibid.;* accord *Dept. of Finance v. Comm'n on State Mandates* (2003) 30 Cal.App.4th 727, 748 [requirement that school districts allocate some of their grant funds in a particular way did not transform those costs into a reimbursable state mandate].)

The 2011 Response describes, in detail, the provisions of the prior permits that are equivalent to Provisions C.2.b (pp. 59-60), C.2.c (pp. 60-61), C.2.e (pp. 61-62), C.2.f (pp. 62-63), C.8.b (pp. 30-31), C.8.c (pp. 31-33), C.8.d (pp. 33-35), C.8.e (pp. 35-38), C.8.f (pp. 38-39), C.8.g (pp. 39-40), C.8.h (pp. 40-42), C.10.a (pp. 49-51); C.10.b (pp. 51-52); C.10.c (p. 53); C.10.d (p. 53), C.11.f and C.12.f (pp. 55-56). As documented in these pages, many program components, and their associated costs, existed before the MRP was issued and many of the MRP's permit terms were proposed by Permittees. In addition, reported program costs are not all attributable to compliance with the MRP. For example, the Alameda Stormwater Quality Management Plan (1996-2001 Plan) demonstrates that the County had organized an internal Maintenance Committee, "consisting of municipal public works supervisors [who] developed several categories of performance standards including street sweeping, maintenance of storm drainage facilities, corporation yards, and road maintenance and repair." The Maintenance Committee devised BMPs that all municipalities executed. (Att. 31, p. ES-6.) The 1996-2001 Plan records permittees' efforts to make capital improvements to corporation yards to "prevent washwater from entering the storm drain system by July 1, 1995." (Att. 31, Alameda Stormwater Management Plan (1996-2001), p. 6-2. See also *id.* at pp. 5-13 through 5-16, Performance Standards [washing vehicles/equipment, refuse holding areas, chemical storage, road repair, graffiti removal, etc.].) That same plan documents involvement in the regional monitoring program and numerous other monitoring efforts in place as of 1996/97. (*Id.* at pp. A-6 through A-8.) As of 2001, eight years before the issuance of the MRP, "most of the cities [had] implemented other recommended improvements such as covering materials stored outdoors and hauling wastes from the yard." (*Ibid.*) The 2001-2008 Alameda Stormwater Management Plan reflects the "use of street sweeping to remove potential pollutants prior to their being flushed into local creeks and the bay. All of the municipalities report their street sweeping and storm drainage cleaning activities on a standardized monthly form." (Att. 30, p. 3-15.)

In response to the San Francisco Bay Regional Water Board's brief, containing over 22 pages of specific citations to documents demonstrating that the contested provisions do not represent new programs or higher levels of service, claimants 10-TC-01, 10-TC-02 and 10-TC-03 (City of Brisbane, County of San Mateo and Santa Clara County) (Counties) submit virtually identical rebuttal briefs, each dedicating roughly a page to the issue, asserting only that a dollar amount

can be attributed to the contested provisions.[2] The Commission should reject claimants' dismissive approach. A review of the facts demonstrates that the permittees were already independently implementing the requirements of the contested provisions, or those provisions existed in prior permits.

Although San Jose submitted a substantially similar brief on Provisions C.8, C.10, C.11 and C.12, it is the only petitioner to brief Provision C.2. San Jose admits that each of the new provisions was something the city was already implementing in various plans:

- Provision C.2.b: "[T]he Management Plan contains many provisions similar to those in the New Permit" (San Jose Reply, p. 5);
- Provision C.2.c: "[T]he City already complies with Provision C.2.c of the new Permit through its Annual Work Plans" (*Id.*at p. 6);
- Provision C.2.e: San Jose does not refute that the requirements of the New Permit are comparable to "the practices that San Jose adopted in previous management Plans" (*Id.* at p. 6); and
- Provision C.2.f: San Jose does not refute that it was previously required to maintain a Stormwater Pollution Prevention Plan in past permits, nor does it give any evidence of any best management practices that it would *like* to implement that it is *prevented from* implementing under the suite of alternatives provided in the MRP (*Id.* at p. 7).

San Jose argues that because those provisions were not *in the prior permit*, they are new or higher levels of service, even though San Jose had already undertaken those services. (*Id.* at pp. 5-7.) But the fact that San Jose was *already performing* those services, in accordance with City plans or policies, means there is nothing *new*; there is no new cost to San Jose beyond what it had previously incurred for the same services. (*County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal. App.4th at pp. 1189 [no new program] and 1193 [limited to programs previously funded exclusively by the state].) Under these circumstances, there is no new program or higher level of service for which the State shifted responsibility under Section 6.

3. Independent Federal Standards Require Each of the Contested Provisions.

Department of Finance addressed the narrow question of whether the federal MEP standard and certain implementing regulations[3] mandated both the trash can and inspection requirements contained in the LA Permit. In reaching its decision, the Supreme Court's analysis necessarily turned on whether, and to what extent, the MEP standard and the specific implementing regulations compelled the Los Angeles Regional Board to impose the challenged permit conditions.[4] Consequently, the Supreme Court decision has limited application when the federal standard compelling a challenged permit provision is wholly separate from the MEP standard and those specific implementing regulations. One of the exceptions to the subvention

[2] San Jose does not separately brief these issues in its reply, which is limited to a discussion of Provision C.2. Rather, it joins the Santa Clara test claim, 10-TC-03, on these issues.

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

[4] *Id*. at p. 767 ("The federal CWA broadly directed the board to issue permits...designed to reduce the pollutant discharges to the maximum extent practicable").

requirements is if the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation. (Gov. Code, § 17556, subd. (c).)

In this case, the MRP contains provisions required by TMDLs; all provisions are required pursuant to the Clean Water Act; all provisions are required Basin Plan Prohibitions approved by U.S. EPA; and a variety of other federal statutes mandate MRP provisions. These are separate, independent federal requirements the Supreme Court did not analyze in the *Department of Finance* decision.

A. MRP Provisions Are Necessary to Implement TMDLs

The Code of Federal Regulations provides that once U.S. EPA approves a TMDL for a waterbody, any NPDES permit, including an MS4 permit, must include effluent limits "consistent with the assumptions and requirements of any available wasteload allocations." (40 C.F.R. § 122.44, subd. (d)(1)(vii)(B).) Provisions 11 and 12 of the MRP are designed to comply with TMDLs for mercury and PCBs and Provision C.8.e pertains to monitoring necessary to assess compliance with TMDLs.

Provisions C.11.f and C. 12.f relate to the implementation of total maximum daily load ("TMDL") requirements. (2011 Response, pp. 12-15 and 57-59.) As discussed in greater detail in the 2011 Response, the purpose of a TMDL is to determine how much of a specific pollutant a waterbody can tolerate and still meet water quality standards and protect beneficial uses. (See 2011 Response, pp. 12-13 [general program description].) The TMDL process leads to a "pollution budget" designed to restore the health of a polluted water body. Approval of this pollution budget by U.S. EPA is required. (33 U.S.C., §1313, subd. (d)(2).) Section 303(d) of the Clean Water Act requires the development and adoption of TMDLs for impaired waterbodies on the 303(d) List. Once the TMDL is approved by U.S. EPA, any NPDES permit, including MS4 permits, must include effluent limits "consistent with the assumptions and requirements of any available wasteload allocations." (40 C.F.R. § 122.44, subd. (d)(1)(vii)(B).) The federal regulations pertaining to TMDL implementation provide an alternative an independent federal authority for Provisions C.11 and C.12. (33 U.S.C. § 1313, subd. (d) [Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards]; 40 C.F.R.§ 122.44, subd. (d)(1)(vii)(B) [permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation].)

Federal law compelled the San Francisco Water Board to include the TMDL-related provisions in the MRP:

> In accordance with CWA section 303(d), the Water Board is required to establish TMDLs for these pollutants to these waters to gradually eliminate impairment and attain water quality standards. Therefore, certain early pollutant control actions and further pollutant impact assessments by the Permittees are warranted and required pursuant to this Order.

(MRP, p. 5, Finding 11.)

> The purpose of this provision is to implement the urban runoff requirements of the San Francisco Bay mercury TMDL and reduce

> mercury loads to make substantial progress toward achieving the urban runoff mercury load allocation established for the TMDL.

(MRP, p. 96 [Provision C.11].)

> The purpose of these provisions is to implement the urban runoff requirements of the PCBs TMDL and reduce PCBs loads to make substantial progress toward achieving the urban runoff PCBs load allocation.

(MRP, p. 103 [Provision C.12]. See also p. 81 [pollutant of concern monitoring in Provision C.8.e intended to assess progress toward achieving TMDLs].)

The nature of the discretion exercised by the San Francisco Regional Board in complying with section 122(d)(1)(vii)(B) was different and more limited than under the MEP standard. Section 122(d)(1)(vii)(B) specifically directs the Board to include effluent limits which are consistent with the assumptions of any applicable WLAs. In other words, the Board had no "true choice" but to include the TMDL-related provisions in the MRP that will result in attainment of the WLA within the timeframe established in the TMDL. (*Department of Finance,* supra, 1 Cal.5th at p. 765 [“On the other hand, if federal law gives the state discretion whether to impose a particular implementing requirement, and the state exercises its discretion to impose the requirement by virtue of a "true choice," the requirement is not federally mandated."].)

The only discretion the Board employed when complying with 122(d)(1)(vii)(B) was crafting provisions which were consistent with the assumptions and requirements of the applicable WLAs. In exercising this limited discretion, the Board simply translated the WLAs directly into effluent limits in the form of required control actions. This involved significantly less discretion than did the provisions at issue in *Department of Finance*.

In the LA MS4 case, the Commission determined that the permit requirement pertaining to trash receptacles was a reimbursable state mandate, but specifically noted that those local agencies subject to the requirements were not subject to a trash TMDL. (Statement of Decision re. Case Nos. 03-TC-04, 03-TC-19, 03-TC-20 and 03-TC-21 (July 31, 2009), p. 1.) The 2011 Response briefs the applicability of TMDLs to the contested provisions on pages 12-15. *Department of Finance* has no impact on this analysis.

B. Clean Water Act Prohibitions

Separate and apart from the MEP standard is the Clean Water Act requirement that MS4 permittees effectively prohibit non-stormwater discharges to their MS4s. (See State Water Board Order No. 2015-0175 (2012 LA MS4 Permit), pp. 62-63 [confirming that non-stormwater discharges to the MS4s under the Clean Water Act are not subject to the MEP standard applicable to stormwater discharges].) Under section 402(p)(3)(B)(ii), permitting agencies “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers.” U.S. EPA has defined “storm water” to mean “stormwater runoff, snow melt runoff and surface runoff and drainage. Non-stormwater discharges are generally considered dry weather discharges. In general, the requirement to “effectively prohibit” non-stormwater discharges requires either prohibiting the flows to the MS4’s system or ensuring that operators of such non-stormwater systems obtain permits for those discharges. (55 Fed. Reg. 47990 at 47995.) MS4 operators meet this requirement by implementing a program to detect and remove illicit discharges, or by requiring a discharger to obtain a separate NPDES permit for the non-stormwater discharge into the storm sewer. (40 C.F.R. § 122.26, subd. (d)(2)(iv)(B).) Although

U.S. EPA has exempted specified categories of non-stormwater discharges from this prohibition, the same regulation provides that the exemption no longer applies to a category that a municipality has identified as a pollutant source. (*Id.*)

Federal MS4 permit application requirements specify that an applicant must demonstrate adequate legal authority to "[p]rohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer;" and "[c]ontrol through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water." (40 C.F.R. § 122.26, subd. (d)(2)(i)(B) and (C).) The regulations define the term "illicit discharges" as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer)…." (*Id.* at § 122.26, subd. (b)(2).) In other words, since illicit discharges are not authorized by the Clean Water Act, they must be prohibited.

The 2011 Response establishes that each of the contested provisions of the MRP are independently affirmed by this section of the Clean Water Act. (2011 Response, pp. 9, 15, 42 [Provision C.8], 48 and 54 [Provision C.10]; 56 [Provision C.11 and C.12]; and 64 [Provision C.2].) The municipal and trash provisions (C.10) clearly prohibit illicit discharges – discharges of substances other than stormwater. Requiring pilot level diversions of dry weather and first flush flows to the municipal sanitary sewer implements the federal prohibition on non-stormwater discharges, and the requirement for municipalities to develop a program to implement the prohibition on non-stormwater discharges to separate storm sewers. (40 C.F.R. §122.26, subd. (b)(2), (d)(2)(iv)(B)(1); State Water Board Order No. 2015-0175 (2012 LA MS4 Permit).)

The Supreme Court restricted its evaluations of the LA MS4's permit terms to the sole issue of whether those terms complied with the "maximum extent practicable" standard. *Department of Finance* did not evaluate whether the permit terms complied with the Clean Water Act's non-stormwater discharge prohibition.

C. Basin Plan Prohibitions

The 2011 Response specifically notes the application of the Basin Plan prohibition to Provisions C.10 (pp. 48, 53-55), but the Prohibition against discharging toxic and deleterious substances also pertains to Provision C.2 (requiring control of discharges from municipal operations) and Provisions C.11 and C.12 (mercury and PCBs).

Claimants argue that the San Francisco Bay Water Board may not rely on the Basin Plan prohibition as a reason for adopting the above provisions. The Fact Sheet indicates that the San Francisco Bay Water Board adopted the Prohibition in 1975. (MRP, Fact Sheet, p. I-71.) Under Government Code section 17551, subdivision (c), test claims must be filed within 12 months of the effective date of a statute or executive order. Claimants' argument that the Basin Plan prohibition imposes a state mandate is not timely because the time for challenge to it passed more than thirty years ago. Even if this claim were timely, it would fail because the prohibitions are not unique to local governments. (See Part 6, below.)

Department of Finance does not construe either relevant Basin Plan prohibitions or statute of limitations arguments and is thus not applicable to the Commission's evaluation of each of these arguments.

D. Federal Requirements for Public Outreach and Education

The public participation and citizen monitoring required by C.8.f is required by federal law. Title 40 of the Code of Federal Regulations, section 122.26, subdivision (d)(2)(iv) requires public participation in developing a stormwater management program. Stormwater permittees must also develop "a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers" as well as "educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials." (40 C.F.R. § 122.26, subd. (d)(iv)(B)(5)- (6).) EPA guidance emphasizes the importance of giving the public opportunities to play an active role in both the development and implementation of the Phase II program, and suggests three types of citizen monitoring Best Management Practices (BMPs) to comply with the public participation requirements of the stormwater regulations: "(1) Volunteer water quality monitoring, which "gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means of collecting water quality data;" (2) Citizen watch groups, which "can aid local enforcement authorities in the identification of polluters;" and "Adopt A Storm Drain" programs, which "encourage individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through storm drains." (Att. 2, U.S. EPA, Stormwater Phase II Compliance Assistance Guide, at p. 4-24.) Similarly, the guidance recommends "coordinating volunteers for locating and visually inspecting outfalls and stenciling storm drains" in order to detect illicit discharges. (*Id.*, at p. 4-28.) Here, Provision C.8.f of the MRP does not specify which type of citizen monitoring permittees must institute, but EPA's guidance makes clear that such monitoring is a necessary element of the federal requirement to "facilitate public reporting" of illicit discharges and water quality impacts. (See 40 C.F.R. 122.26, subd. (d)(iv)(B)(5).) Because federal law compelled the Board to include these requirements, and the Board determined that these provisions were necessary to meet these federal requirements in conformity with the federal MEP standard, the Board is entitled to appropriate level of deference in making this determination.

E. Federal Requirements for Monitoring

Federal reporting requirements mandate annual reporting on the "status of implementing" controls and require claimants to provide a "summary of data, including monitoring data, that is accumulated throughout the reporting year." (40 C.F.R. § 122.42, subd. (c)(4).) Federal stormwater regulations further require that MS4 permittees submit reports that include "[t]he status of implementing the components of the storm water management program that are established as permit conditions." (40 C.F.R. § 122.26, subd. (a)(1)(v)(1).)

> [W]hile otherwise more flexible than the traditional NPDES permitting system, nothing in the ms4 permitting scheme relieves permittees of the obligation to monitor their compliance with their NPDES permit in some fashion. See 33 U.S.C. § 1342(a)(2) ("The Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of [the permit], including conditions on data and information collection, reporting, and such other requirements as he deems appropriate."); 40 C.F.R. § 122.44(i)(1) (establishing that every permit "shall include" monitoring "[t]o assure compliance with the permit limitations")

(*Natural Resources Defense Council, Inc. v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1209–10.) MS4s shall specify a monitoring scheme "sufficient to yield data which are representative of the monitored activity...." (*Id.* at 1210 [citing 40 C.F.R. § 122.48, subd. (b)].)

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

> Permit writers should clearly specify requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as installing them in the first place. By having specific requirements, Permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning.

(Att. 4, MS4 Permit Improvement Guide, pp. 63-64.)

Each of the contested monitoring provisions in C.8 and C.10 trash reporting provisions constitute "data … accumulated throughout the reporting year" and reports on permit implementation that provide the required information concerning the status of implementation controls. The 2011 Response briefs the numerous federal requirements, separate and apart from MEP, that validate the MRP's monitoring provisions. (2011 Response, pp. 27-29 [MS4 permits must require monitoring conditions], 42-43 [monitoring provisions required by Clean Water Act and implementing regulations]; 43-44 [collaborative and watershed monitoring required by federal law]; 44-45 [characterization of MS4 discharges required by federal law]; 46 [citizen monitoring required by federal law]; 47 [electronic reporting required by federal law]; 48 [requirements to control trash at the heart of the MS4 program]; 53-55 [two separate federal requirements in addition to MEP govern trash provisions]; 56-59 [federal law requires provisions to control mercury and PCBs]; and 63-64 [federal requirements concerning municipal operations].) *Department of Finance* does not construe any of these authorities.

4. U.S. EPA Has Required Similar Provisions In Permits It Has Issued.

The Supreme Court observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 permit), and found that the absence of such conditions in EPA-issued permits "undermines the argument that the requirement was federally mandated." (*Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 772.) The Court's modifications to its original opinion underscore that determining what constitutes MEP is a case-by-case, factual determination and the absence of similar conditions in EPA-issued permits is not fatal to the argument that a particular requirement is necessary to meet the federal standard.[5] U.S. EPA has, however, issued

[5] THE COURT:

> The opinion in this matter filed on August 29, 2016, and appearing in the California Official Reports at 1 Cal.5th 749, is modified as follows: On page 768 of the published opinion, a footnote is inserted at the end of the sentence that reads: "The board's legal authority to administer the CWA and its technical experience in water quality control would call on sister agencies as well as courts to defer to that finding." The new footnote, which is numbered as footnote 15, reads: "Of course, this finding would be case specific, based among other things on local factual circumstances." On page 771 of the published opinion, current footnote 15 is renumbered as footnote 16. On page 772 of the published opinion, the word "fatally" is deleted from the sentence that reads: "The fact the EPA itself had issued permits in other cities, but did not include the trash receptacle condition, fatally undermines the argument that the requirement was federally mandated." …

permits requiring substantially similar provisions as the contested provisions of the MRP. If the State had not issued the MRP, the U.S. EPA would have done so. As demonstrated in the following table, the U.S. EPA has issued permits containing substantially similar provisions, demonstrating that the San Francisco Bay Water Board effectively administered federal requirements concerning permit requirements. (See 2011 Response, p. 22.)

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

> The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 67722, 68754; Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process.") Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")[6]

(Emphasis in original.) The need for, e.g., "expanded or better-tailored BMPs" is illustrated in the specificity of U.S. EPA's own permit provisions, as shown here:

MRP	U.S. EPA-Issued Permits
Provision C.2.b (Permittees shall implement or require BMPs for pavement washing, mobile cleaning and pressure wash operations which prohibit the discharge of polluted wash water and non-stormwater to storm drains from public areas)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section 3.3.3: the Permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4.[7] See also Section I.A.4.3.7 (6), which requires that the Permittee "[e]nsure that any residual water following infrastructure maintenance shall be self-contained." Att. 8a, Boston (1999) (Permit No. MAS010001), Sections (r) and (u): authorizes, subject to "appropriate control measures in the SWMP to ensure these discharges [street wash waters and building washdown water] are not significant sources of pollutants to waters of the United States." As demonstrated by Boston's Annual Stormwater Management Report, appropriate control measures included controlling these types of discharges. In the Spill/Dumping Report, the first

[6] Att. 5, Letter from Alexis Strauss to Tam Doduc and Dorothy Rice, April 10, 2008, concerning Los Angeles County Copermittees Test Claim Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.

[7] See also Albuquerque (2014) (Permit No. NMR04A000) Section I.A.4, authorizing discharges of "street wash waters that do not contain detergents and where no un-remediated spills or leaks of toxic or hazardous materials have occurred," subject to "the permittee [documenting] the reason these discharges are not expected to be significant contributors of pollutants to the MS4."

	violation listed was washing down a building. (Att. 8b, Boston Water and Sewer Commission Annual Stormwater Management Report, Table 3-3 ["Comp. washing down bldg. Was directed to stop and clean up area."].) That same Table reflects several other violations for disposal of soapy water into storm drains, the same area of concern reflected in Provision C.2.b. Att. 9, Joint Base Lewis-McChord (2013) (Permit No. WAS-026638), Appx. A, pp. 62-63: noting that "street waste liquids require treatment before their discharge" and noting that preferred disposal option was to a POTW.
Provision C.2.c (Permittees shall implement BMPs to prevent polluted discharges from bridge and structural maintenance; prevent discharges associated with graffiti removal)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.4.3.7 (6): Ensure that any residual water following infrastructure maintenance shall be self-contained. *Id.* at Section I.A.4.3.6.2: Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation and these areas should have effective erosion control until stabilized.
Provision C.2.e (Permittees shall implement and require contractors to implement BMPs for erosion and sediment control during and after construction for maintenance activities on rural roads)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.4.6.3 Stormwater Management for Construction Sites: Continue to implement inspection and enforcement procedures, including but not limited to inspection of permitted construction sites that disturb more than 5,000 square feet of soil as follows: 1. First inspection prior to ground disturbing activities to review planned sediment and erosion control measures; 2. Second inspection to verify proper installation and maintenance of sediment and erosion control measures; 3. Third inspection to review planned installation and maintenance of stormwater management practices; 4. 4. Fourth inspection to verify proper installation of stormwater management practices following final stabilization of the project site; and 5. 5. Other inspections as necessary to ensure compliance with relevant standards and requirements. *Id.* at Section I.A 4.3.2: The permittee shall implement and comply with [Section 4.6.3] at all permittee-owned or operated public construction projects. *Id.* at Section I.A.4.3.6.2: Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation and these areas should have effective erosion control until stabilized.

	See generally *id.* at Section 4.6 Stormwater Management for Construction Sites.
Provision C.2.f (Permittees shall prepare, implement and maintain a site specific Stormwater Pollution Prevention Plan (SWPPP) for corporation yards)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.4.3.3 Vehicle Maintenance/Material Storage Facilities/Municipal Operations: The permittee shall implement stormwater pollution prevention measures at all permittee-owned, leased facilities and job sites including but not limited to vehicle/equipment maintenance facilities, and material storage facilities. For vehicle and equipment wash areas and municipal facilities … the permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4…. *Id.* at Section 4.3.7 The permittee shall continue to implement an operation and maintenance program … at all municipal facilities ... The permittee shall document the program in the Annual Report, as required at Section 6.2 herein. See also Att. 9, Joint Base Lewis-McChord (2013)(Permit No. WAS-026638), Section II.B.6.h: requires development of SWPPP at vehicle maintenance yards. See also Att. 10, Boise, ID (2013) (Permit No. IDS-027561) Section II.B.4.f: Develop and Implement Storm Water Pollution Prevention Plans. Permittees must develop and implement SWPPPs for all Permittee-owned material storage facilities, and maintenance yards….
Provision C.8.b (Permittees shall participate in implementing an Estuary receiving water monitoring program) **Provision C.8.c** (Permittees shall complete Status Monitoring) **Provision C.8.e.i, ii and iv** (Permittees shall implement pollutant of concern load monitoring and long-term monitoring using protocols identified in 40 C.F.R. § 122.21, subd. (g)(7)(ii).)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.5.2 Interim Monitoring: (wet weather discharge monitoring; storm event data; sample type, collection, and analysis; dry weather monitoring; area and/or source identification program; flow measurements; monitoring and analysis procedures). Att. 9, Joint Base Lewis-McChord (2013) (Permit No. WAS-026638), Section IV.A.9, p. 38: Provides for participation in Puget Sound Regional Monitoring Program in lieu of certain monitoring requirements. See generally Att. 10, Boise, ID (2013) (Permit No. IDS-027561), Section V Monitoring and Reporting Requirements (similar provisions). See generally Att. 7, Albuquerque, NM (2014) (Permit No. NMR04A000), Part III Monitoring, Assessment, and Reporting Requirement (similar provisions).
Provision C.8.d (When	Att. 3, Washington, D.C. Revised Monitoring Program (2016), p.

Status Monitoring results trigger a follow-up action, Permittees shall conduct a site-specific evaluation)	9: •Monitoring is adaptive – the monitoring program incorporates the flexibility to be modified if needed. For instance, it can be modified if monitoring results identify the need to incorporate a follow-on study or if additional parameters or sites need to be monitored to gather the information required to understand sources or stressors and their impacts. See also *id.* at p. 50, Follow Up Site Visits and Investigation, which requires: "This element addresses Section 5.4 of the MS4 permit, which requires DOEE to '… identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters…'"
Provision C.8.f (Encourage Citizen Monitoring, make reasonable efforts to seek out citizen information, and demonstrate encouragement of citizen and stakeholder observations)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.4.9 Public Education and Public Participation: The District shall continue to implement a public education program…. See generally *id.* at Section 4.9.1 (Education and Outreach). *Id.* at Section 4.9.2, Measurement of Impacts: The permittee shall continue to measure the understanding and adoption of selected targeted behaviors among the targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively as well as to evaluate changes in adoption of the targeted behaviors. *Id.* at Section 4.9.3, Recordkeeping: The permittee shall track and maintain records of public education and outreach activities. *Id.* at Section 4.9.4: The permittee shall facilitate opportunities for direct action, educational, and volunteer programs such as riparian planting, **volunteer monitoring programs**, storm drain marking or stream clean-up programs. Att. 9, Joint Base Lewis-McChord (2013) (Permit No. WAS-026638), Section II.B.2.d: required development of ongoing volunteer activities that could include, but were not limited to, "storm drain stenciling or marking program; establishing a website, email address and/or hotline for citizens to report pollution concerns; establishing a pet waste management program." See also Att. 3, Washington, D.C., Revised Monitoring Program (2016), p. 17: requires "Implementing an Environmental Education Program to educate District teachers, students, and residents on the benefits of environmental stewardship."
Provision C.8.g (Report data and monitoring)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.6, (Reporting Requirements).

	Att. 3, Washington, D.C., Revised Monitoring Program (2016), p. 75: "DOEE's monitoring data (quantitative and qualitative) will be input into separate Microsoft Access databases for each component of the Revised Monitoring Program…."
Provision C.8.h (Electronic reporting)	Att. 3, Washington, D.C., Revised Monitoring Program (2016), p. 55: "Data are initially recorded on paper data sheets and then transferred into an electronic database." *Id.* at p. 75: "DOEE's monitoring data (quantitative and qualitative) will be input into separate Microsoft Access databases for each component of the Revised Monitoring Program…."
Provision C.10.a.i, ii, and iii (Permittees shall submit a Short-Term Trash Load Reduction Plan, determine baseline trash load, and install and maintain a minimum number of full-trash capture devices) **Provision C.10.c** (Permittees shall develop a Long Term Trash Load Reduction Plan) **Provision C.10.d** (Report on trash reduction efforts and data collected)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A.4.7.2: The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls. *Id.* at Section I.A.4.10.1: At the end of the first year the permittee must submit the trash reduction calculation methodology with Annual Report to EPA for review and approval. The methodology should accurately account for trash prevention/removal methods beyond those already established when the TMDL was approved, which may mean crediting a percentage of certain approaches. The calculation methodology must be consistent with assumptions for weights and other characteristics of trash, as described in the 2010 Anacostia River Watershed Trash TMDL. Annual reports must include the trash prevention/removal approaches utilized, as well as the overall total weight (in pounds) of trash captured for each type of approach. *Id.* at Section 4.4.1 Inventory of Critical Sources and Source Controls: 4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. 4.4.1.3 The permittee shall update its inventory of critical sources at least annually. *Id.* at Section 4.10.3: Consolidated TMDL Implementation Plan requiring, where applicable, "numeric benchmarks [which] will specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks" and interim milestones. The plan must also demonstrate, using modeling, how goals will be attained and include a narrative explanation for the schedules and controls proposed.

	Att. 3, Washington, D.C. Revised Monitoring Program (2016), p. 5 [Trash Monitoring]: Trash monitoring occurs at stormwater outfalls where trash traps have been installed during wet weather events. It will be implemented at three sites in the Anacostia Watershed, two in the Potomac Watershed, and one in the Rock Creek Watershed. A number of categories of trash are quantified and the total weight of trash from each site will be recorded. Sample collection and analysis, quality control, reporting and adaptive management are described. The information collected through trash monitoring will inform the MS4 Program about trends in trash accumulation and the success of trash control efforts. See also *id.* at p. 51, *et seq*., Trash Monitoring.
Provision C.10.b (Permittees shall identify and clean up Trash Hot Spots and assess the cleanups to determine trash sources)	Att. 6, Washington, D.C. (2011) (Permit No. DC0000221), Section I.A: 4.7.2 The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls. *Id.* at Section 4.4.1 Inventory of Critical Sources and Source Controls: 4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. 4.4.1.3: The permittee shall update its inventory of critical sources at least annually. 4.4.2: Inspection of Critical Sources. The permittee shall continue to inspect all commercial facilities identified in Part 4.4.1. herein and any others found to be critical sources twice during the five-year term of the permit. A minimum interval of six months between the first and the second mandatory compliance inspection is required, unless a follow-up inspection to ensure compliance must occur sooner. *Id.* at Section 4.7.1: The permittee shall continue to implement an ongoing program to detect illicit discharges, pursuant to the SWMP, and Part 4 of this permit, and to prevent improper disposal into the storm sewer system, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). Such program shall include, at a minimum the following: … d. Visual inspections of targeted areas. *Id.* at Section I.A 4.10.1, Anacostia River Watershed Trash TMDL Implementation: The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term.

	Reductions must be made through a combination of the following approaches: 1. Direct removal from waterbodies, e.g., **stream clean-ups,** skimmers 2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks 3. Direct removal prior to entry to the MS4, e.g., street sweeping 4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection 5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees
Provisions C.11.f and C.12.f (Evaluate possibility of reducing mercury and PCBs in the environment through diversion of dry weather and first flush stormwater flows to sanitary sewers; implement pilot projects; report on pilot projects)	Att. 9, Joint Base Lewis-McChord (2013) (Permit No. WAS-026638), Appx. A, p. 62: provides for disposal of decant water from catch basins to sanitary sewer or stormwater treatment BMPs.

5. Claimants Have the Authority to Raise Fees for the Contested Provisions.

Subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or funded through service charges, fees, or assessments. (See Gov. Code, § 17556, subd. (d) [costs not mandated by the state when the local agency has "authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service"]; *County of Los Angeles v. Comm'n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1189 ["in order for a state mandate to be found, the local governmental entity must be required to expend the proceeds of its tax revenues"]; *Redevelopment Agency v. Comm'n on State Mandates* (1997) 55 Cal.App.4th 976, 987 ["No state duty of subvention is triggered where the local agency is not required to expend its proceeds of taxes"].)[8] Subvention of funds is only required if expenditure of tax monies is required, and not if the costs are simply reallocated or funded through other means.

In the case of the LA MS4 permit, the Supreme Court noted the Commission's conclusion that although the inspection requirements were new programs or higher levels of service, it found that the claimants in that case were not entitled to state reimbursement for the costs of compliance with the inspection requirements because "they could levy fees to cover the costs of

[8] The claimants must also demonstrate that the fees are more than de minimis. (*San Diego Unified School Dist. v. Commission on State Mandates*, *supra*, 33 Cal.4th at p. 889 ["incidental procedural requirements, producing at most de minimis added cost, should be viewed as part and parcel of the underlying federal mandate, and hence nonreimbursable under Government Code, section 17556, subdivision (c)"].) The 2011 Response demonstrates that any additional costs as a result of providing clarification or more detail are de minimis. (2011 Response, pp. 2, 16, 24, 25, 40 and 65.) *Department of Finance* did not consider when a particular cost is de minimis. Except to the extent the Court affirmed prior holdings that de minimis costs do not create reimbursable mandates, *Department of Finance* does not apply to the Commission's determination on that issue.

the required inspections." (*Dept. of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 761.)

> The Commission also finds that the remainder of the permit (parts 4C2a, 4C2b & 4E) does not impose costs mandated by the state … because the claimants have fee authority (under Cal. Const. article XI, § &) within the meaning of Government Code section 17556, subdivision (d), sufficient to pay for the activities in those parts of the permit.

(Statement of Decision re. Case Nos. 03-TC-04, 03-TC-19, 03-TC-20 and 03-TC-21 (July 31, 2009), p. 1. See also Commission on State Mandates' Parameters and Guidelines and Decision Re. Test Claims 03-TC-04, 03-TC-20 and 03-TC-21 [providing guidance concerning reimbursement of costs for trash receptacles but omitting any recovery of costs for inspections]; and Final Statement of Decision, San Diego Region Permit, 07-TC-09, March 30, 2010, pp. 102-105 [provisions in the permit were nonreimbursable where the copermittees had the ability to impose fees on the development community].)

In the originating action, the Commission issued a Final Statement of Decision in a stormwater permit Test Claim filed by the County of Los Angeles and several additional co-permittee test claimants. (Municipal Storm Water and Urban Runoff Discharges, 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21 (Los Angeles Regional Water Quality Control Board Order No. 01-182 (July 31, 2009) (County of Los Angeles Test Claim).) In the Commission's Statement of Decision, the Commission found that all but one of the challenged provisions issued by the Los Angeles Water Board in its MS4 permit did not qualify as unfunded state mandates as they did "not impose costs mandated by the state within the meaning of article XIII B, Section 6 of the California Constitution because the claimants have fee authority (under Cal. Const. article XI, § 7) within the meaning of Government Code section 17556, subdivision (d), sufficient to pay for the activities in those parts of the permit." (County of Los Angeles Test Claim, Statement of Decision, p. 2.)

Although the Supreme Court acknowledged the Commission's finding, it did not address the fee issue, but remanded for further proceedings. *Department of Finance* is thus inapplicable on this issue. The 2011 Response briefs the claimants' fee authority on pages 24-25, and demonstrates that, like the Commission's decisions with respect to inspections in the LA MS4 permit, these contested provisions should be upheld.

Similarly, the MRP claimants are not *required* to use taxes to pay for the costs of the programs, and can levy fees, such as inspection fees. The claimants have the ability to charge fees to cover development program costs.[9] In addition, the claimants may impose the cost of of storm drain connections on new development. (See, e.g., Att. 11, San Jose website [describing fee schedule for storm drain connections].)[10] For other Provisions, cities can and do adopt fees from their residents and busiesses that fund their stormwater programs. For example, the City of Alameda has adopted fees for implementation of their programs. (See, e.g., Att. 12, Alameda

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

[10] In its Final Statement of Decision in 07-TC-09, issued March 30, 2010, the Commission found that the Copermittees have authority to fund these programs. In that case, the claimants cross-petitioned, seeking a writ of mandate overturning the Commission's determination. The trial court has not resolved these issues.

website [describing stormwater fee structure].)[11] Indeed, Palo Alto recently raised its stormwater fee this year. (See Att. 13, Mercury News article.)

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

Claimants have not submitted evidence demonstrating the fiscal impact or funding sources used to comply with the contested provisions of the MRP. Claimants must establish that they are required to use tax monies to pay for implementation of permit provisions. (Gov. Code §§ 17553, subd. (b)(1)(F) [test claim must identify funding sources, including general purpose funds available for this purpose, special funds and fee authority]; and Gov. Code § 17556, subd. (d).)

6. There is No Unfunded Mandate Where the Requirement Has General Applicability.

In order to obtain reimbursement, the Claimants must demonstrate either that (1) the program must carry out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, implement unique requirements on local governments and do not apply generally to all residents. (Cal. Const. Art. XIIIB, § 6, subd. a; see also *City of Richmond v. Comm'n on State Mandates* (1998) 64 Cal.App.4th 1190, 1199.) "[T]he intent underlying section 6 was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities." (*San Diego Unified School Dist.* v. *Comm'n on State Mandates*, *supra*, 33 Cal.App.4th at p. 874.)

Reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general applicability are not entitled to subvention because they do not "force" programs on localities. (*Id.* at p. 875; *County of Los Angeles v. State of California, supra,* 43 Cal.3d at pp. 56-57.) The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required. (*Ibid.; City of Richmond v. Comm'n on State Mandates, supra,* 64 Cal.App.4th at p. 1197.)

EPA requires both municipal and non-municipal stormwater discharges to be controlled. (40 C.F.R. § 122.26, subd. (a)(vi)(6).) Moreover, numerous provision of the MRP are "laws of general applicability" and therefore fail to constitute an unfunded state mandate. (See *City of Richmond v. Comm'n on State Mandates, supra,* 64 Cal.App.4th at pp. 1197-1198.) Compliance with NPDES regulations, and specifically with stormwater permits, is required by private industry as well as state and federal government agencies. Local government is not subject to "unique" requirements. Thus, while the MRP provisions applied only to the

[11] The question of whether permittees lack fee authority if the electorate must approve an increase in fees is pending in Petition for Writ of Administrative Mandamus, Sacramento Superior Court, Case No. 34-2010-8000604, p. 11, ¶31.

municipalities and counties enrolled in the permit, the substantive actions required by the permit's provisions were by no means unique to this class of permittee.

A. Provision C.2 (Corporation Yards)

Stormwater discharges from both private entities and state agencies are overwhelmingly managed through iterative BMP-based approaches. (See State Water Resources Control Board Order Nos. 97-03 [*Waste Discharge Requirements for Discharges Associated with Industrial Activities Excluding Construction* Activities] ["1997 IGP"] [Att. 15]; 2009-0009-DWQ [*General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* ["2009 CGP"] [Att. 16]; 99-06-DWQ [*NPDES Permit for Storm Water Discharges from the State of California, Department of Transportation Properties, Facilities, and Activities*] ["1999 Caltrans Permit"] [Att. 17].) In fact, municipal stormwater discharges are not even managed as stringently as industrial and construction stormwater discharges. (*Defenders of Wildlife v. Browner, supra*, 191 F.3d at pp. 1164-1165 [distinguishing "strict compliance" required of industrial stormwater dischargers to MEP standard applicable to municipal stormwater dischargers].) In addition, numerous facilities in the Bay Area, such as Allied Defense Recycling, and Bay Ship & Yacht Company, were required to manage their stormwater discharges under individual NPDES permits in analogous ways to the municipal permittees. (See, e.g., Att. 18, Order No. R2-2008-0062 [Allied Defense Recycling/Mare Island Shipyard]; Att. 19, Order No. R2-2005-0039 [Bay Ship & Yacht Company].)

For example, the 1997 IGP, the 2009 CGP, and the 1999 Caltrans Permit, which were in effect at the time that the MRP was adopted, had equivalent provisions to those of C.2. (See Att. 15, 1997 IGP, at pp. 11-23 [describing content of SWPPP]; Att. 17, 1999 Caltrans Permit Fact Sheet, at pp. 3-4, 6, 9 [describing Storm Water Management Plan requirement, need for BMPs at maintenance facilities, requirement for SWPP for construction activities]; Att. 17, 1999 Caltrans Permit, at p 8, 12, 20; Att. 16, 2009 CGP Fact Sheet, at p. 31 [describing BMPs for erosion control, runoff and run-on control, good housekeeping, and non-storm water discharge elimination].)

In fact, Provision C.2.f, specifically, applied to municipalities that had corporation yards not already enrolled in the 1997 IGP: this interchangeability of permit coverage belies San Jose's claim that provision C.2.f imposed unique requirements. (See MRP, at p. 14). Similarly, the San Francisco Bay Regional Water Board's reference to a non-municipal resource for selecting BMPs, the "Caltrans Storm Water Quality Handbook Maintenance Staff Guide," demonstrates that the BMPs required to be incorporated in an SWPPP created under Provision C.2.f are not specific to municipalities. (*Id.*) The IGP recommended equivalent BMPs to Provision C.2.f, including "dry cleanup methods," preventative maintenance, good housekeeping, spill prevention control, covering exposed areas, and prevention of run-on in maintaining outdoor corporation yards. (Compare MRP, p. 14-15 with Att. 15, 1997 IGP, at p. 17-19.)

The 1999 CalTrans permit, applicable to state highways, contained provisions akin to Provision C.2.e, requiring Caltrans to implement erosion and sediment control BMPs, including prioritization of maintenance based on soil erosion potential, slope steepness, and stream habitat resources, (Att. 17, 1999 CalTrans Permit, at p. 15-16; 20), and C.2.b, including a prohibition against discharging "wastes or wastewater from road sweeping vehicles" into surface waters or storm drains. (*Id.,* at p. 7.) The 2009 CGP also had provisions equivalent to C.2.b, requiring permittees to "implement measures to control all non-storm water discharges," including "properly washing vehicles in contained areas" and "cleaning streets," and C.2.e,

requiring stabilization of disturbed areas, erosion control and sediment control. (See Att. 16, at p. 31-32.)

The 2009 CGP, the 1997 IGP, and the individual permits for Allied Defense Recycling and Bay Ship & Yacht had provisions that mirrored C.2.b (sidewalk and pavement maintenance and washing) and C.2.c (bridge maintenance and graffiti removal). For instance, the CGP permit required the prevention of discharge of debris into storm drains or water courses (Att. 16, 2009 CGP, attachment C, p. 2) and includes "paint wash water" among prohibited non-storm water discharges (Att. 16, 2009 CGP, Appx. 5, p. 5). The individual permits for Allied Defense Recycling and Bay Ship & Yacht required the permittees to prevent paint residue from entering waterways. (Att. 18, *Allied Defense*, Order No. R2-2008-0062, at p. 12 [requiring BMP plan to control paint use and abrasive blasting]; p. F-7 [prohibiting discharge of pressure washing water and paint residue]; Att. 19, *Bay Ship & Yacht,* Order No. 2005-0039, at p. 7 [prohibiting discharges of pressure washing water, spent abrasive and paint residues, into waters of the state and requiring sweeping and/or pressure washing of dry docks between vessels]; see also Att. 15, 1997 IGP Fact Sheet, at p. IX [rinsing or washing of pavement].)

B. Provision C.8 (Monitoring)

With respect to the monitoring requirements in Provision C.8, federal law requires *all* NPDES permits to include monitoring "sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring," (40 C.F.R. § 122.48, subd. (b).) In keeping with this requirement, the monitoring requirements in provision C.8 are shared not only by the municipal permittees, but also by other NPDES permittees in the Bay Area. For instance C.8.b, which provides for contribution to the Regional Monitoring Program or equivalent regional monitoring networks, is not limited to municipal dischargers. (See Att. 20, San Francisco Bay Regional Water Quality Control Board, Reso. No. 92-043 [*Implementation of the Regional Monitoring Program within the San Francisco Bay Region*] [resolving to suspend monitoring requirements for permitted dischargers that allocate resources to the RMP]; see also, e.g., Att. 21, Order No. R2-2006-0029 [*USS-POSCO*] [individual NPDES permit requiring steel processor to participate in RMP]; Att. 26, Order No. R2-2007-0077 [Mercury Watershed Permit] [recommending participation in RMP]; see also Att. 23, Mercury TMDL Staff Report, at p. IV-6 [RMP data is important in guiding adaptive management and implementation of TMDL].) The San Francisco Bay Mercury Watershed Permit required public participation in mercury risk reduction by both industrial and municipal dischargers. (Att. 26, Order No. R2-2007-0077, at p. F-31.) Pollutants of concern identification and monitoring akin to Provision C.8.e is not unique and is also required in individual NPDES permits. (See, e.g., Att. 21, Order No. R2-2006-0029 [*USS*-POSCO], at pp. 14, 15 [requiring steel processor to identify types of pollutants of concern, sources and methods of reduction, and effectiveness of such methods]; see also Att. 22, Order No. R2-2006-0035 (*Chevron*), at p. F-26, F-30 [describing requirement for Chevron to conduct ambient background monitoring and specifying representative location].) Similarly, both general and individual NPDES permits also require electronic reporting, as required in Provision C.8.h. (2011 Response, p. 47; see also, e.g., Att. 16, 2009 CGP, § I, Findings, at p. 6; Att. 29, Schnitzer Steel, Order No. R2-2016-0045, at p. E-4.)

C. Provision C.10 (Trash)

The prohibition against discharging any solid waste and floating materials, including trash, is applied to many types of non-municipal NPDES permittees, as a refinement of the general prohibition on non-stormwater discharges. (See, e.g., Att. 16, 2009 CGP, at § I (Findings), p. 7 [prohibition on discharge of debris, defined as "litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste"]; Att. 19, Bay Ship & Yacht, Order No. 2005-0039, at

p. 7 [prohibitions on discharge of "solid materials and solid wastes" and "floating oil or other floating material"]; Att. 29, Schnitzer Steel, Order No. R2-2016-0045, at p. 4 [prohibition on discharge of "untreated stormwater… or waste materials" including "rubbish, refuse, or debris"]; p. 11 [requiring Water Pollution Prevention Plan to identify the activities that generate refuse and debris, "locations where these materials may accumulate, source types and characteristics"] ; p. 13 [requiring all debris and waste to be cleaned up and disposed of properly].) In circumstances other than the municipal stormwater context, strict compliance is required, and dischargers are not permitted to achieve zero discharge over time. (But see Att. 29, Schnitzer Steel, at p. 4, 13 [allowing discharge of "incidental wind-blown debris" if done so after implementation of BMPs].)

D. Provisions C.11.f and C.12.f (TMDL Implementation)

Provisions C.11.f and C.12.f, which require Permittees to conduct pilot feasibility studies to divert mercury and PCBs, respectively, to public treatment works, implement the mercury and PCBs TMDLs in the San Francisco Bay. In addition to being mandated by federal law, these two provisions are also generally applicable to entities aside from local agencies. (See generally Atts. 23 and 24 [TMDL Staff Reports].) The Mercury TMDL has wasteload allocations for stormwater runoff, wastewater from refineries and other industrial dischargers, and publicly-owned treatment works, while the PCBs TMDL has wasteload allocations for industrial wastewater discharges, municipal discharges, stormwater, and the Central Valley watershed. (See Att. 23, Mercury TMDL Staff Report, at pp. III-5 - III-7; Att. 24, PCBs TMDL Staff Report, at p. 63-64.) Under both TMDLs, municipalities managing stormwater and industrial facilities managing wastewater have comparable obligations to identify and reduce their discharges of mercury and PCBs. (See Att. 23, Mercury TMDL Staff Report, at pp. III-9- III-10, III-14; Att, 24, PCBs TMDL Staff Report, at p. 71 [wasteload allocations for municipal and industrial dischargers would be implemented through BMPs]; p. 73 [diversion of dry and/or wet weather flows to POTWs "should be investigated, pilot-tested, and implemented where feasible"].) NPDES permits in the Bay Area impose requirements of feasibility studies akin to the requirements in C.11.f and C.12.f. (See Att. 25, Order No. R2-2007-0032[*C&H Sugar*], Appx. F-6, at pp. 4-7 [describing results of mercury source investigation]; Att. 23, R2-2007-0077 [*Mercury Watershed Permit*], at p. E-8 [requiring both industrial and municipal dischargers to provide description of source control projects, including estimates of avoided mercury loading achieved by recycling water].)

In *Department of Finance*, the Supreme Court did not make any findings concerning these exceptions to unfunded mandates law. As discussed in the 2011 Response, stormwater capture and discharge is not strictly a municipal function; private industry is also subject to NPDES permits for stormwater discharges and stormwater discharges from industrial and construction sites are subject to more stringent permits than the MRP. (2011 Response, p. 24.)

7. Separate Stormwater Discharge is a Voluntary Program

No subvention is required when a local agency incurs costs voluntarily. (See *Dept. of Finance v. Comm'n on State Mandates* (2003) 30 Cal. 4th 727, 743 [costs of complying with program requirement to prepare agenda not entitled to subvention where participation in program itself was voluntary]; *City of Merced v. State of Cal.* (1984) 153 Cal. App. 3d 777, 783 [payment for loss of goodwill not state mandated where city elected to acquire property by eminent domain].) Here, similarly, there is no requirement that a municipality discharge via storm sewers or directly into waters of the United States. As noted in the 2011 Response, "While the Permittees cannot control the weather, they do have the discretion to require on-site containment of stormwater runoff or to convey their stormwater to a publicly owned treatment works." (2011 Response at

p. 17, n. 83; see also *City of Riverview v. Department of Environmental Quality* (2013) 2013 WL 5288907, at p. 7 [rejecting claim that stormwater permit imposed unfunded mandate on localities because "the operation of a drainage and sewer system is permissive and not mandated by state law," even if it was regulated by the state], review denied by 497 Mich. 862.) In San Francisco, for example, a combined collection system carries stormwater and domestic wastewater into treatment facilities that treat all waste prior to discharge. (Att. 27, San Francisco Southeast Plant (NPDES Permit No. CA0037664), Order No. Order R2-2013-0029.) The treatment removes trash, PCBs and mercury, all provisions claimants have attacked. (*Id.*) In Tomales Bay, the municipality collects all domestic wastewater and discharges to percolation ponds, or recycles the treated wastewater to use for irrigation. In other words, there is no requirement to get an NPDES permit for stormwater, which could be treated and/or used for land applications. (Att. 28, Tomales Village WDR, Order No. R2-2015-0019.) Likewise, certain industrial dischargers process their stormwater in onsite wastewater treatment plants, such as Schnitzer Steel Industries, as opposed to enrolling in the Industrial General Stormwater Permit. (See Att. 29, Order No. R2-2016-0045, at pp. F4-F-5 [describing combined waste- and stormwater treatment process].)

CONCLUSION

The focus of *Department of Finance* was the application of the MEP standard to two LA MS4 provisions, where the Los Angeles Regional Water Quality Control Board had not explicitly found that the provisions met that standard. (*Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 768.) In reaching the conclusion that those two provisions did *not* meet MEP, the Court suggested that the result might have been different if the agency *had* found that permit conditions were MEP, and specifically noted that deference to the agency would be appropriate. (*Id.*) Here, the San Francisco Regional Water Board *did* find that the permit conditions of the MRP constituted MEP. Those findings are entitled to deference.

Even if the Commission does not defer to the San Francisco Bay Regional Water Board's findings, analogous provisions in U.S. EPA-issued permits independently demonstrate that the MRP's provisions were federally mandated. (See *id.*, at p. 772.) In addition, the MRP's provisions implement other federal standards, identified by the 2011 Response and this brief, that the Supreme Court did not evaluate.

Furthermore, the Supreme Court's decision did not address a number of the other exceptions to mandates law present here, such as the existence of fee authority, the absence of a new program or higher level of service, and the absence of requirements "unique" to local governments.

For these reasons, the Supreme Court's ruling in *Department of Finance* should not affect the conclusion that the MRP does not impose unfunded state mandates on the test claimants and the Commission should deny the claims accordingly.

Respectfully submitted,

Tamarin E. Austin
Attorney IV

Attachments

1. State Board Order WQ 2009-0008 (County of Los Angeles)
2. U.S. EPA Stormwater Phase II Compliance Assistance Guide (2000)
3. Washington, D.C., Revised Monitoring Program (2016)
4. U.S. EPA MS4 Permit Improvement Guide (2010)
5. Letter from Alexis Strauss to Tam Doduc and Dorothy Rice (April 10, 2008)
6. Washington D.C. NPDES Permit No. DC0000221 (2011)
7. Albuquerque NPDES Permit No. NMR04A000 (2014)
8. 8A Boston NPDES Permit No. MAS0100001 (1999)
   8B Boston Annual Stormwater Management Report (2009)
9. Joint Base Lewis McChord NPDES Permit No. WAS-026638 (2013)
10. Boise NPDES Permit No. IDS-027561 (2013)
11. City of San Jose website (Storm Drain Connection Fees)
12. City of Alameda website (Sewer and Storm Water Fees)
13. *Palo Alto Proceeds with Storm Water Management Fee Increase*, Mercury News, 2016
14. Black & Veatch 2005 Stormwater Utility Survey
15. State Board Order 97-03-DWQ (1997 IGP)
16. State Board Order 2009-0009-DWQ (2009 CGP)
17. State Board Order 99-06-DWQ (1999 CalTrans Permit)
18. Order No. R2-2008-0062 (Allied Defense Recycling)
19. Order No. R2-2005-0039 (Bay Ship & Yacht Company)
20. San Francisco Bay Water Board Resolution No. 92-043
21. Order No. R2-2006-0029 (USS-POSCO Industries)
22. Order No. R2-2006-0035 (Chevron)
23. Mercury TMDL Staff Report (2006)
24. PCBs TMDL Staff Report (2008)
25. Order No. R2-2007-0032 (C&H Sugar Company)
26. Order No. R2-2007-0077 (Mercury Watershed Permit)
27. Order No. R2-0029 (San Francisco Southeast Plant)
28. Order No. R2-2015-0019 (Tomales Village)
29. Order No. R2-2016-0045 (Schnitzer Steel Industries, Inc.)
30. Alameda Stormwater Quality Management Plan (2001-2008)
31. Alameda Stormwater Quality Management Plan (1996-2001)

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2009-0008

In the Matter of the Petition of

COUNTY OF LOS ANGELES AND LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

Waste Discharge Requirements Order No. R4-2006-0074
Issued by the
California Regional Water Quality Control Board,
Los Angeles Region

SWRCB/OCC FILE A-1780

BY THE BOARD:

In 2001, the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) adopted Waste Discharge Requirements Order No. 01-182 (the permit), a national pollutant discharge elimination system (NPDES) municipal storm water permit. The permit authorizes storm water discharges from municipalities throughout the County of Los Angeles.[1] In 2002, the Los Angeles Water Board established a total maximum daily load (TMDL) for bacteria at Santa Monica Bay beaches during dry weather (the TMDL). The TMDL includes a waste load allocation for municipal storm water discharges. On September 14, 2006, the Los Angeles Water Board modified the permit by adopting Waste Discharge Requirements Order No. R4-2006-0074 (the Permit modification). The Los Angeles Water Board crafted the Permit modification to implement the summer dry weather waste load allocations in the TMDL.

On October 16, 2006, the County of Los Angeles and the Los Angeles County Flood Control District (Petitioners) filed a petition with the State Water Resources Control Board (State Water Board), challenging the Permit modification. The Petitioners asked that the petition be placed in abeyance. Two years later, in September 2008, the Petitioners activated

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[1] The City of Long Beach is subject to a separate municipal storm water permit. (Los Angeles Water Board Order 99-060 [NPDES No. CAS004002].)

the petition. In this Order, the State Water Board concludes that the Los Angeles Water Board's implementation of the TMDL through the Permit modification was appropriate and proper.[2]

I. BACKGROUND

A. Regulatory Background

The Petitioners contend the Los Angeles Water Board improperly translated the provisions of an existing TMDL into a municipal storm water permit. In this section, we provide a brief overview of relevant portions of the regulatory frameworks for TMDLs and for storm water regulation.

1. TMDLs

In State Water Board Order WQ 2001-06 (*Tosco*), this Board provided a detailed background of TMDLs. As we explained in the *Tosco* order, water quality standards provide the foundation for identifying impaired waters that require a TMDL. Clean Water Act section 303(c) requires the states to adopt water quality standards that protect the public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act. Water quality standards consist of the beneficial uses of a water body and the criteria to protect those uses. For waters subject to the Clean Water Act, California's water quality standards are typically found in regional water quality control plans (basin plans) and in statewide plans.

Clean Water Act section 303(d) requires states to identify waters of the United States for which technology-based effluent limitations are not stringent enough to implement water quality standards. We refer to those waters that are not attaining water quality standards as impaired waters, and identify the impaired waters on the state's 303(d) list of water quality limited segments.

For the pollutants causing impairment of waters of the United States, Clean Water Act section 303(d) requires states to establish TMDLs. "A TMDL defines the specified maximum amount of a pollutant which can be discharged or 'loaded' into [impaired waters] from all combined sources."[3] A TMDL is the sum of the individual wasteload allocations assigned to point sources, load allocations for nonpoint sources, and other elements designed to achieve

[2] To the extent Petitioners raised issues not discussed in this order, such issues are hereby dismissed as not substantial or appropriate for review by the State Water Board. (See *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Board* (2004) 123 Cal.App.4th 1107; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).)

[3] *Dioxin/Organochlorine Center v. Clarke* (9th Cir. 1995) 57 F.3d 1517, 1520.

water quality standards.[4] Regional water quality control boards typically adopt TMDLs as part of each region's basin plan[5] and therefore include programs for implementation.[6] In essence, TMDLs serve as a backstop provision of the Clean Water Act designed to implement water quality standards when other provisions have failed to achieve water quality standards.

TMDLs are not self-executing, but instead, rely upon further orders or actions to adjust pollutant restrictions on individual dischargers.[7] Federal regulations state that water quality based effluent limitations in NPDES permits must be consistent with the assumptions and requirements of the wasteload allocations in the TMDL, if the TMDL has been approved by the United States Environmental Protection Agency (U.S. EPA).[8]

The State Water Board estimates that statewide over 580 TMDLs will be needed for the current impaired waters list of 2,238 pollutant/water body combinations. Over 115 TMDLs are currently under development.

2. Municipal Storm Water Regulation

This Board has discussed the regulatory requirements for municipal storm water discharges in prior orders.[9] Section 402(p) of the Clean Water Act prohibits the discharge of pollutants from specified municipal separate storm sewer systems (MS4s) to waters of the United States except as authorized by an NPDES permit. Section 402(p) contains two substantive standards applicable to municipal storm water permits: MS4 permits (1) "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers;"[10] and (2) "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."[11]

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[4] 40 C.F.R. § 130.3(i).

[5] See 40 C.F.R. §§ 130.6(c)(1) & 130.7.

[6] Wat. Code, §§ 13050, subd. (j), & 13242.

[7] *City of Arcadia v. EPA* (N.D.Cal. 2003) 265 F.Supp.2d 1142, 1144-1145; see also, e.g., State Water Board Resolution 2002-0149, ¶ 9 (approving Santa Monica Beaches Dry Weather Bacteria TMDL and noting that numeric targets and wasteload allocations are not directly enforceable and will need to be translated into individual permit requirements during a subsequent permitting action).

[8] 40 C.F.R. § 122.44(d)(1)(vii)(B).

[9] See, e.g., State Water Board Orders WQ 91-03 (*Communities for a Better Environment*), WQ 96-13 (*Save San Francisco Bay Ass'n*), WQ 2000-11 (*Cities of Bellflower et al.*), and WQ 2001-15 (*BIA*).

[10] 33 U.S.C., § 1342(p)(3)(B)(ii).

[11] *Id.*, § 1342(p)(3)(B)(iii).

U.S. EPA promulgated regulations establishing minimum requirements for all MS4 permits. The regulations generally focus on requirements that MS4s implement programs to reduce the amount of pollutants found in storm water discharges to the maximum extent practicable. The regulations also require the MS4's program to include an element to detect and remove illicit discharges and improper disposal into the storm sewer.[12] U.S. EPA added the illicit discharge program requirement with the stated intent of implementing the Clean Water Act provision requiring permits to "effectively prohibit non-storm water discharges."[13] Neither the Clean Water Act nor the federal storm water regulations define "non-storm water." "Illicit discharge" is defined as any discharge to an MS4 "not composed entirely of storm water."[14] Thus, "illicit discharge" is the most nearly applicable definition of "non-storm water" found in federal law and is often used interchangeably with that term.

B. Procedural Background

In 1998, the State Water Board added 44 Santa Monica Bay beaches to its 303(d) list due to bacteria impairments. As required by the Clean Water Act, the Los Angeles Water Board adopted a TMDL entitled *Dry Weather TMDL for Bacteria at Santa Monica Bay Beaches* (the TMDL) on January 24, 2002. The State Water Board approved the TMDL on September 19, 2002. The California Office of Administrative Law and U.S. EPA subsequently approved the TMDL, and the TMDL became effective on July 15, 2003.

The Los Angeles Water Board established the TMDL to protect swimmers and other recreational users of Santa Monica Bay beaches when there are dry weather conditions and the beaches are most heavily used. Dry weather is defined in the TMDL to mean those days with less than 0.1 inches of rain and days at least three days after a day with 0.1 inches of rain or more. The TMDL recognizes that, under certain conditions, even undeveloped watersheds may have exceedances of bacteria water quality standards. As a result, the TMDL differentiates between summer dry weather (April 1 to October 31) and winter dry weather (November 1 to March 31). In summer dry weather, a reference beach in an undeveloped watershed had no exceedances of bacteria water quality standards. The resulting summer dry weather wasteload allocations in the TMDL are, therefore, zero days of exceedance of the bacteria water quality standards at a particular beach. In winter dry weather, the reference

[12] 40 C.F.R. § 122.26(d)(2)(iv)(B).

[13] National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges; Final Rule (hereafter Phase I preamble), 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).

[14] 40 C.F.R. § 122.26(b)(2). The definition of "illicit discharge" does provide exceptions for discharges pursuant to a separate NPDES permit and for discharges resulting from fire fighting activities. (*Ibid*.)

beach had three exceedances of the bacteria water quality standards. The resulting winter dry weather wasteload allocations allowed no more than three days of exceedance of the bacteria water quality standards at a particular beach.[15]

The TMDL includes wasteload allocations for municipal storm water discharges. Recognizing the different challenges associated with achieving the summer and winter dry weather wasteload allocations, as well as the higher summertime use of the beaches, the Los Angeles Water Board's implementation plan for the TMDL established a shorter schedule for achieving the summer dry weather wasteload allocations. The basin plan amendment establishing the TMDL included an implementation plan with a final compliance date of July 15, 2006 for summer dry weather. The final date for winter dry weather is July 15, 2009. By those dates, the TMDL's implementation plan anticipated there were to be no more discharges from MS4s that cause or contribute to exceedances of bacteria water quality standards on summer dry weather days.

The TMDL applies to Santa Monica Bay beaches along 55 miles of coastline, from Leo Carillo State Beach in the north to Outer Cabrillo beach in the south. Together, the beaches host an average of 55 million visitors per year, who add approximately $1.7 billion dollars to the local economy.

In May 2006, the Los Angeles Water Board's staff provided notice of its proposal to reopen and modify the permit in order to establish permit requirements consistent with the TMDL and its implementation plan. The proposed modification would make the TMDL's wasteload allocations enforceable, and be consistent with U.S. EPA's regulation requiring that effluent limitations in NPDES permits be consistent with the assumptions and requirements of the wasteload allocations in the TMDL.[16] The Los Angeles Water Board solicited and received two rounds of comments on the proposed permit revisions, held a public workshop to solicit oral and written comments, and issued two sets of responses to comments. During the comment period, the Los Angeles Water Board received many comment letters, including letters of support from Governor Schwarzenegger and other public officials. On September 14, 2006, the Los Angeles Water Board held a public hearing and adopted a permit modification that included requirements to implement the TMDL's summer dry weather wasteload allocations.

[15] Relying on antidegradation principles, the TMDL established winter dry weather wasteload allocations of zero, one, two, or three days of bacteria exceedances based on a particular beach's historical water quality.

[16] 40 C.F.R. §122.44(d)(1)(vii)(B).

The modification prohibits discharges that cause or contribute to exceedances of bacteria water quality standards at Santa Monica Bay beaches on summer dry weather days. The Permit modification added Part 2.5 to the Receiving Water Limitations. Part 2.5 states:

> During Summer Dry Weather there shall be no discharges of bacteria from MS4s into the Santa Monica Bay that cause or contribute to exceedances in the Wave Wash, of the applicable bacteria objectives. The applicable bacteria objectives include both the single sample and geometric mean bacteria objectives set to protect the Water Contact Recreation (REC-1) beneficial use, as set forth in the Basin Plan.

The Permit modification also added a discharge prohibition. Discharge Prohibition 1.B states: "Discharges of Summer Dry Weather flows from MS4s into Santa Monica Bay that cause or contribute to exceedances of the bacteria Receiving Water Limitations in Part 2.5 below are prohibited." Neither the discharge prohibition nor the receiving water limitations includes an iterative process towards compliance.

Petitioners submitted a timely joint petition to the State Water Board on October 16, 2006. Pursuant to State Water Board regulations,[17] the petition was held in abeyance for nearly two years before Petitioners activated it on September 18, 2008. On that date, Petitioners also submitted a supplemental statement of points and authorities, which the State Water Board hereby adds to the administrative record. Petitioners, the Los Angeles Water Board, and a group of three environmental organizations sought leave to make additional submissions and to add evidence to the administrative record.[18] Those requests are hereby denied.[19]

II. ISSUES AND FINDINGS

Contention: The discharge prohibition and receiving water limitations added by the Permit modification are ambiguous and should be clarified.

Finding: The contested provisions are sufficiently clear and were properly adopted. We conclude that no changes are necessary and reject this contention. Petitioners claim that the discharge prohibition and receiving water limitations added by the Permit modification could be construed to prohibit storm water discharges containing bacteria, despite the Los Angeles Water Board's stated intention to limit those provisions to non-storm

[17] See Cal. Code Regs., tit. 23, § 2050.5, subd. (d).

[18] The filings include Petitioners' request to file a reply pleading, and various requests for administrative notice and to submit additional evidence.

[19] See Cal. Code Regs., tit. 23, §§ 2050.5, subd. (a), & 2050.6.

water discharges. In Petitioners' view, the words "non-storm water" should be added to Part 2.5 of the permit's receiving water limitations to match that intent and to clarify that Part 2.5 does not apply to storm water discharges.

Part 2.5 of the permit reads: "During Summer Dry Weather there shall be no discharges of bacteria from MS4s into the Santa Monica Bay that cause or contribute to [bacteria] exceedances…." The permit defines dry weather as "days with less than 0.1 inch of rainfall and occurring more than three days after a rain day."[20] "Summer Dry Weather" is a dry weather day occurring from April 1 to October 31 of each year.[21]

Petitioners' proposed revision to Part 2.5 would read: "During Summer Dry Weather there shall be no *non-storm water* discharges of bacteria from MS4s . . . ." (Italics added.) They argue that, without the change, Part 2.5 may apply to "storm water" because that term is defined in federal regulations to include "surface run-off and drainage." Petitioners imply that the federal reference to "surface run-off and drainage" includes run-off and drainage discharges that occur during dry weather periods of the summer.

We decline to accept Petitioners' proposed language, including their similar proposal for Discharge Prohibition 1.B, because the language chosen by the Los Angeles Water Board is clear and appropriate. The challenged permit provisions do not apply to storm water flows. U.S. EPA has previously rejected the notion that "storm water," as defined at 40 Code of Federal Regulations section 122.26(b)(13), includes dry weather flows. In U.S. EPA's preamble to the storm water regulations, U.S. EPA rejected an attempt to define storm water to include categories of discharges "not in any way related to precipitation events."[22] The Los Angeles Water Board's permit language follows U.S. EPA's approach. The new Permit provisions specifically regulate dry weather discharges, which are defined to exclude discharges occurring during or immediately following a reportable precipitation event. Any discharges during such dry weather days would not be precipitation-related. No liability will attach under these provisions for discharges during, or as the result of, a rainfall event exceeding 0.1 inches.

In any event, Petitioners' proposed language deviates from that of the underlying wasteload allocation. That wasteload allocation defines "dry weather" and "summer dry weather" with language identical to that used in the challenged provisions.[23] The discharges

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[20] Permit, Part 5, Definitions.

[21] *Ibid*.

[22] 55 Fed. Reg. 47990, 47995.

[23] See Basin Plan, Tables 7-4.1, 7-4.2a.

regulated by the wasteload allocation are not qualified by the modifier "non-storm water," or any other term. Because 40 Code of Federal Regulations section 122.44(d)(1)(vii) requires effluent limitations to be consistent with the assumptions and requirements of the underlying wasteload allocation, we refuse to unnecessarily add language that, if anything, could cause confusion and threaten compliance with U.S. EPA's regulation.

Contention: The receiving water limitations and discharge prohibition are numeric effluent limitations and, therefore, do not follow the accepted approach for controlling municipal storm water discharges.

Finding: The contested provisions are appropriate and proper. The summer dry weather discharges, as defined by the Permit and the TMDL, are more appropriately regarded as non-storm water discharges, which the Clean Water Act requires to be effectively prohibited.

Petitioners liken the challenged provisions to numeric effluent limitations, and then cite various state and federal sources to argue that using numeric effluent limitations to implement a TMDL in a storm water permit is inappropriate. Petitioners point to State Water Board Order WQ 2001-15 (*BIA*), where we stated that, for municipal storm water permits, "we will generally not require 'strict compliance' with water quality standards through numeric effluent limitations," and instead "we will continue to follow an iterative approach, which seeks compliance over time" with water quality standards.[24] They also point to a U.S. EPA guidance document entitled *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (the U.S. EPA guidance document).[25] Petitioners cite a provision therein that reads, "because storm water discharges are due to storm events that are highly variable in frequency and duration and are not easily characterized, only in rare cases will it be feasible or appropriate to establish numeric limits for municipal and small construction discharges."[26]

The references relied upon by Petitioners are inapposite, and do not support invalidating the Los Angeles Water Board's requirements. Instead, the Petitioners' references are directed at the regulation of storm water discharges. The Permit modification is limited to non-storm water discharges which occur during summer dry weather. The U.S. EPA guidance document is limited to wasteload allocations "for storm water discharges" and permit limitations

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[24] *BIA*, *supra*, at p. 8.

[25] U.S. EPA, *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*, Memorandum from U.S. EPA Director, Office of Wetlands, Oceans and Watersheds Robert H. Wayland, III and Director, Office of Wastewater Management James Hanlon to Water Division Directors, Regions 1-10, Nov. 22, 2002 (hereafter U.S. EPA guidance document).

[26] *Id.*, at p. 4.

and conditions "based on the [wasteload allocations] for storm water discharges."[27] Furthermore, the Clean Water Act and the federal storm water regulations assign different performance requirements for storm water and non-storm water discharges. These distinctions in the guidance document, the Clean Water Act, and the storm water regulations make it clear that a regulatory approach for storm water - such as the iterative approach we have previously endorsed - is not necessarily appropriate for non-storm water.

We instead look to directly relevant authorities. Federal law requires municipal storm water permit limitations to be consistent with applicable wasteload allocations.[28] The Clean Water Act requires MS4 permit requirements to effectively prohibit non-storm water discharges.[29] Similarly, California law requires NPDES permits to apply "any more stringent effluent standards or limitations necessary to implement water quality control plans...."[30]

The basin plan established a compliance deadline of July 15, 2006, for achieving final compliance with the summer dry weather wasteload allocations for bacteria. The TMDL, which is a component of the Los Angeles Water Board's basin plan, assigns a wasteload allocation to certain "local agencies that are permittees or co-permittees on a municipal storm water permit."[31] The basin plan further establishes that these agencies are responsible for complying with the summer dry weather wasteload allocation. The summer dry weather wasteload allocation prohibits the exceedance of bacteria water quality objectives on summer dry weather days at specified locations.[32] The Permit modification is consistent with the wasteload allocation and other basin plan provisions.

The Permit modification is also consistent with the federal framework for non-storm water discharges. 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B), which implements the Clean Water Act's requirement for the effective prohibition of non-storm water discharges, requires municipal storm water permittees to detect and remove all categories of non-storm water discharges to the MS4, or to require the non-storm water discharger to obtain a separate NPDES permit. While MS4 permits generally contain exceptions for some non-storm water discharges, these exceptions do not extend to non-storm water discharges identified as a

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[27] U.S. EPA guidance document, *supra*, at p. 1.

[28] 40 C.F.R. § 122.44(d)(1)(vii)(B).

[29] 33 U.S.C. § 1342(p)(3)(B)(ii).

[30] Wat. Code, § 13377.

[31] Basin Plan, Table 7-4.1, fn. 3.

[32] *Id.*, Table 7-4.1.

source of pollutants.[33] In adopting the TMDL, the Los Angeles Water Board identified summer dry weather discharges as a source of water quality exceedances for bacteria. Prohibiting summer dry weather bacteria exceedances caused or contributed to by MS4s is therefore consistent with the federal framework for non-storm water discharges.

Moreover, the references Petitioners' rely upon to challenge the prohibitions and receiving water limitations as strict, numeric effluent limitations are not relevant to this petition. The contested provisions are receiving water limitations, not numeric effluent limitations. The contested provisions do not impose a numeric limitation measured at a point source outfall. Instead, compliance with the limitations is measured in the receiving water, and more specifically, at the "wave wash" for the individual beaches. The TMDL defines the wave wash "as the point at which the storm drain or creek empties and the effluent from the storm drain initially mixes with the receiving ocean water."[34] The provisions are directed at the quality of the receiving water, as affected by the discharge. They do not establish numeric effluent limitations for the discharge to the receiving water.[35],[36]

While the issue before us only concerns permit requirements to implement summer dry weather wasteload allocations and therefore non-storm water discharges, the result would not necessarily be different for municipal *storm water* discharges subject to a TMDL. TMDLs, which take significant resources to develop and finalize, are devised with specific implementation plans and compliance dates designed to bring impaired waters into compliance with water quality standards. It is our intent that federally mandated TMDLs be given substantive effect. Doing so can improve the efficacy of California's NPDES storm water permits. This is not to say that a wasteload allocation will result in numeric effluent limitations for municipal storm water discharges. But, when an approved TMDL is in place, the water boards will give substantive effect to the TMDL and allow it to become much more than an academic exercise. Whether a future municipal storm water permit requirement appropriately implements a storm water wasteload allocation will need to be decided based on the regional

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[33] See 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). The exempted categories include, but are not limited to, water line flushing, rising ground waters, landscape irrigation, and street wash water.

[34] Basin Plan, Table 7-4.1, fn. 1.

[35] See, e.g., *BIA*, *supra*; State Water Board Order WQ 99-05 (*Environmental Health Coalition*). Those Orders endorsed receiving water limitations modified by an iterative process. The absence of an accompanying iterative process does not convert receiving water limitations into numeric effluent limitations.

[36] For the purposes of state enforcement under the Porter-Cologne Act's mandatory minimum penalties law, California distinguishes numeric restrictions on discharged effluent from receiving water limitations. (Wat. Code, § 13385.1, subd. (c).)

water quality control board's findings supporting either the numeric or non-numeric effluent limitations contained in the permit.

III. ORDER

IT IS HEREBY ORDERED THAT the petition of the County of Los Angeles and Los Angeles County Flood Control District is denied.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on August 4, 2009.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Arthur G. Baggett, Jr. Board Member Tam M. Doduc
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

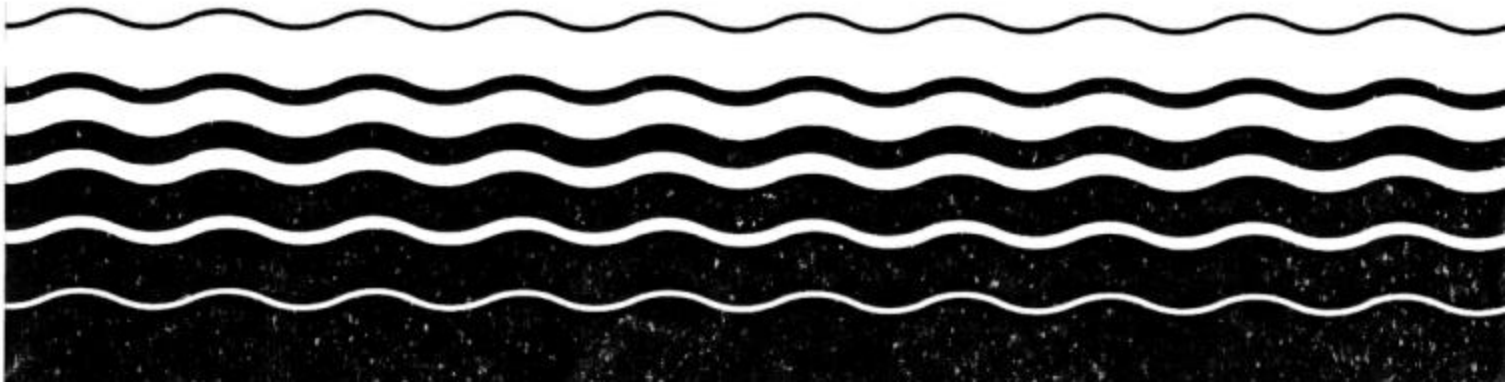
United States
Environmental Protection
Agency

Office of Water
(4204)

EPA 833-R-00-002
March 2000

Storm Water Phase II Compliance Assistance Guide

ATTACHMENT 2



Compliance Guide Notice

The statements in this document are intended solely as guidance to aid regulated entities in complying with the Storm Water Phase II final rule. The guidance is not a substitute for reading the regulation and understanding all its requirements as it applies to your facility. This guidance does not constitute rulemaking by the EPA and may not be relied on to create a substantive or procedural right or benefit enforceable, at law or in equity, by any person. EPA may decide to update this guide without public notice to reflect changes in EPA's approach to implementing Storm Water Phase II or to clarify and update text. To determine whether EPA has revised this document and/or to obtain copies, go to EPA's web site at www.epa.gov/owm/sw/phase2.

1.0 INTRODUCTION

After reading this introduction, you should know whether you need to use this guide, what the guide covers, and where to get the latest information on the regulation.

The U.S. Environmental Protection Agency (EPA) published the regulation entitled "National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges" (*Federal Register*, Volume 64, Number 235, pages 68722-68852) on December 8, 1999 as required by Section 402(p) of the Clean Water Act (CWA). This guide explains how to tell if you are subject to the regulation and what to do if you are required to comply.

1.1 Who should use this guide?

This new rule regulates storm water discharges from two categories:

First, the rule covers storm water discharges to certain ***municipal separate storm sewer systems*** (MS4s). Public entities which operate these MS4s, such as cities, counties, States, and the Federal government, could be regulated under this rule. MS4 operators should read section 4 for more information.

Second, the rule also covers storm water discharges from ***construction activity*** generally disturbing between 1 and 5 acres. A construction operator could include the site owner, developer, contractor, or subcontractor. Construction site operators should read section 5 for more information.

The storm water Phase II final rule also provide regulatory relief for certain ***industrial facilities*** (currently permitted under EPA's storm water regulations) where storm water runoff is not exposed to industrial activities. Operators of industrial facilities interested in the no exposure exclusion should read section 6.

1.2 What Does this Guide Cover?

The purpose of this guide is to help the regulated community comply with the Storm Water Phase II Rule. This guide answers the following basic questions:

- Why is the Storm Water Phase II Rule important?
- Am I subject to the Storm Water Phase II Rule?
- What must I do to comply with the Storm Water Phase II Rule?

1.3 How Do I Use this Guide?

This guide is organized into seven major sections plus three appendices.

Section 1.0 Introduces you to this guide and the Storm Water Phase II Rule. Describes basic types of entities regulated so you can determine if you are affected by the rule.

Section 2.0 Provides background on why the Storm Water Phase II Rule is needed. Topics such as the environmental impacts of storm water and why storm water should be controlled are discussed. The history of the NPDES Storm Water program is briefly described.

Section 3.0 Delivers an overview of the Storm Water Phase II requirements. The basic components of the program are described and schedules and timelines are highlighted.

Section 4.0 Gives step-by-step procedures for operators of small MS4s to determine if they are subject to the regulation and provides information on how to demonstrate compliance.

Section 5.0 Gives step-by-step procedures for operators of small construction activities to determine if they are subject to the regulation and provides information on how to demonstrate compliance.

Section 6.0 Provides a discussion of how the Rule affects industrial facilities, including which industrial facilities are covered, and an explanation of the No Exposure exclusion and how to determine if you qualify.

Section 7.0 Documents the Compliance Assurance Process - Discusses how EPA will determine compliance, what happens if you or EPA discovers noncompliance, and the legal status of the guide.

Appendices Provides additional references and where to go for more information on storm water.

1.4 Where Can I Get More Information on the Storm Water Phase II Rule?

Additional information on the NPDES storm water Phase II rule, including a series of fact sheets and a full copy of the final rule, can be found on EPA's web pages at http://www.epa.gov/owm/sw/phase2.

Compliance assistance will be covered in Section 7 of the guide. One source for compliance assistance and information on the rule is the Local Government Environmental Assistance Network (LGEAN). LGEAN is one of EPA's compliance

assistance centers and can be found on the web at www.lgean.org or contacted by phone at 1-877-TO-LGEAN.

2.0 BACKGROUND

After reading section 2, you should understand the environmental impacts of storm water and the history of the storm water program, including existing regulations to control storm water (Phase I).

2.1 What are the Environmental Impacts from Storm Water Discharges?

Storm water runoff from lands modified by human activities can harm surface water and, in turn, cause or contribute to an exceedance of water quality standards by changing natural hydrologic patterns, accelerating natural stream flows, destroying aquatic habitat, and elevating pollutant concentrations and loadings. Such runoff may contain high levels of contaminants, such as sediment, suspended solids, nutrients (phosphorus and nitrogen), heavy metals, pathogens, toxins, oxygen-demanding substances (organic material), and floatables (U.S. EPA. 1992. *Environmental Impacts of Storm Water Discharges: A National Profile*. EPA 841-R-92-001. Office of Water. Washington, DC). After a rain, storm water runoff carries these pollutants into nearby streams, rivers, lakes, estuaries, wetlands, and oceans. Individually and combined, these pollutants impair water quality, threatening designated beneficial uses and causing habitat alteration and destruction.

The 1996 305(b) Report (U.S. EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. Office of Water. Washington, DC), provides a national assessment of water quality based on biennial reports submitted by the States as required under CWA section 305(b) of the CWA. In the CWA 305(b) reports, States, Tribes, and Territories assess their individual water quality control programs by examining the attainment or

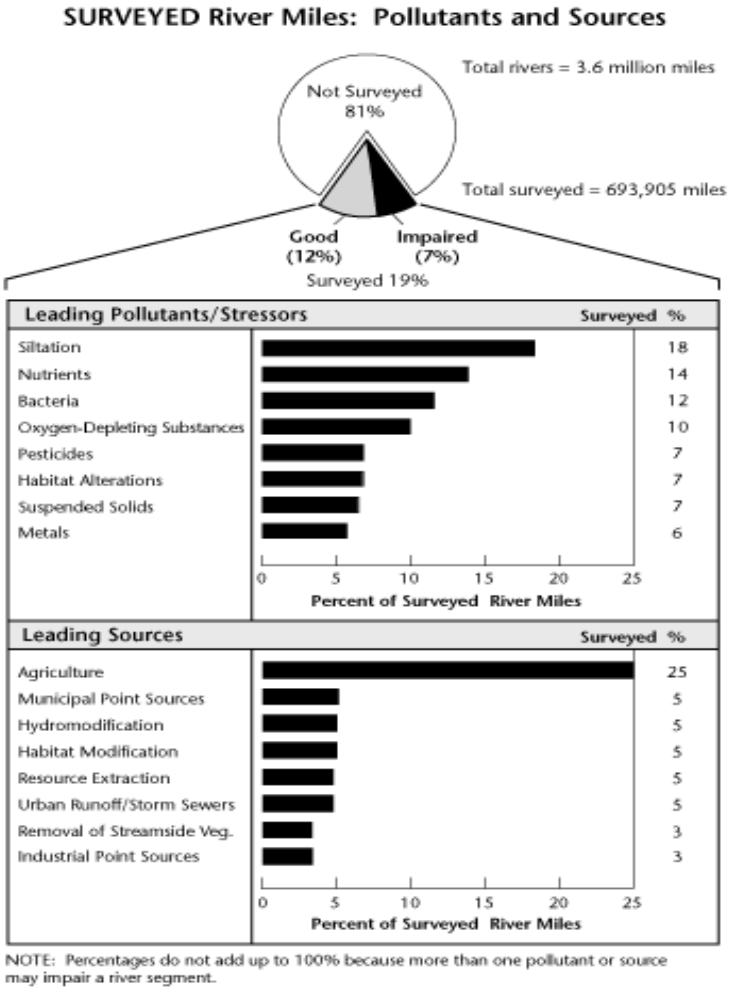


Figure 2-1. Pollutants and Sources in Surveyed River Miles (EPA, 1998)

nonattainment of the designated uses assigned to their rivers, lakes, estuaries, wetlands, and ocean shores. The 1996 Inventory indicated that approximately 40 percent of the Nation's assessed rivers, lakes, and estuaries are impaired.

The 1996 Inventory also found urban runoff/discharges from storm sewers to be a major source of water quality impairment nationwide. Urban runoff/storm sewers were found to be a source of pollution in 13 percent of impaired rivers; 21 percent of impaired lakes, ponds, and reservoirs; and 45 percent of impaired estuaries (second only to industrial discharges). See Figures 2-1 and 2-2 for an illustration of the pollutants and sources of pollution for both rivers and estuaries. In addition to these waterbodies, urban runoff was found to be the leading cause of ocean impairment for those ocean miles surveyed.

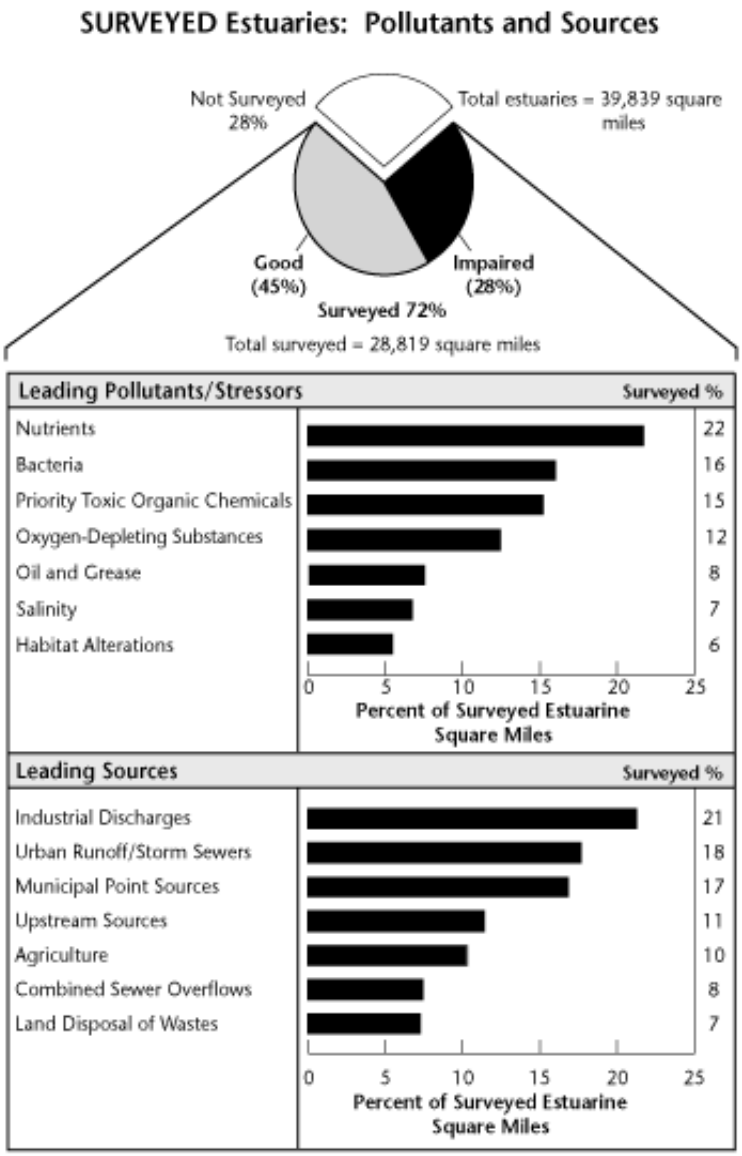


Figure 2-2. Pollutants and Sources in surveyed Estuaries (EPA, 1998)

Urbanization alters the natural infiltration capability of the land and generates a host of pollutants that are associated with the activities of dense populations, thus causing an increase in storm water runoff volumes and pollutant loadings in storm water discharged to receiving waterbodies (U.S. EPA, 1992). Urban development increases the amount of impervious surface in a watershed as farmland, forests, and meadowlands are converted into buildings with rooftops, driveways, sidewalks, roads, and parking lots with virtually no ability to absorb storm water. Storm water and snow-melt runoff wash over these impervious areas, picking up pollutants along the way while gaining speed and volume because of their inability to disperse and filter into the ground (see Figure 2-3 which illustrates the increased runoff resulting from increased impervious area). The resulting storm water flows are higher in volume, pollutants, and temperature than the flows in less impervious areas, which have more natural vegetation and soil to filter the runoff (U.S. EPA, 1997. *Urbanization and Streams: Studies of Hydrologic Impacts*.

EPA 841-R-97-009. Office of Water. Washington, DC).

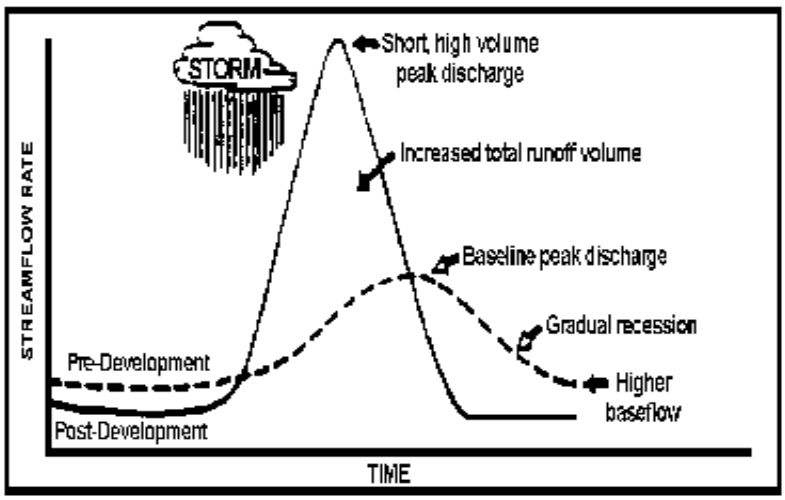


Figure 1. Impacts of urbanization on stream flow (Schueler, 1987).

In addition to the pollutants picked up by storm water runoff before it enters a storm drain, studies have shown that discharges from a storm drain system often include wastes and wastewater from non-storm water sources, referred to as illicit discharges. These discharges are 'illicit' because municipal storm sewer systems are not designed to accept, process, or discharge such wastes. Sources of illicit discharges can include sanitary wastewater illegally connected to the storm drain system; effluent from septic tanks; car wash, laundry, and other industrial wastewaters; improper disposal of auto and household toxics, such as used motor oil and pesticides; and spills from roadways.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, and paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria into receiving waterbodies.

2.2 Summary of EPA's Storm Water Program

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

As pollution control measures for industrial process wastewater and municipal sewage were implemented and refined, it became increasingly evident that more diffuse sources of water pollution were also significant causes of water quality impairment. Specifically, storm water runoff was found to be a major cause of water quality impairment.

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

The Phase I permits for municipal separate storm sewer systems mostly covere larger cities, and require them to develop a storm water management program, track and oversee industrial facilities regulated under the NPDES storm water program, conduct some monitoring, and submit periodic reports.

The operators of construction activities disturbing greater than 5 acres have been required to obtain NPDES permit coverage since 1992. General permits for large construction activity require construction operators to develop and implement a storm water pollution prevention plan to control erosion, sediment and other wastes on the site.

The Phase I industrial storm water program also regulates the following industrial sectors:

- facilities subject to EPA storm water effluent guidelines, new source performance standards, or toxic pollutant effluent standards
- heavy manufacturing facilities
- mining/oil and gas
- hazardous waste faciliites
- landfills
- recycling facilities
- steam electric power
- transportation facilities
- sewage treatment plants
- construction activity (described above), and
- light manufacturing facilities.

The second phase of the storm water program, which this guide addresses, requires permits for storm water discharges from certain small municipal separate storm sewer systems and construction activity generally disturbing between 1 and 5 acres. See Figure 2-4 for a summary of the federal storm water permit requirements under Phases I and II.

Figure 2-4. Summary of Federal Permit Requirements Under the NPDES Storm Water Program

	Municipal Separate Storm Sewer Systems (MS4s)	Construction Activity	Industrial Activity
Requirements in Effect Now (Phase I)	**Medium and Large MS4s** (§ 122.26(d)) • Storm Water Management Program: - Public education and outreach - Public participation efforts - Illicit discharge detection and elimination program - Construction and post-construction runoff control program for all construction activity (no size threshold) - BMPs to reduce pollutants from industrial, commercial, and residential areas • Track/oversee industrial facilities regulated under the NPDES storm water program • Conduct analytical and visual monitoring of MS4 discharges • Submit periodic program assessment reports	**Category (x) Construction Activity (5+ Acres)*** CGP: • Storm Water Pollution Prevention Plan (SWPPP) - Site description - Description of BMPs for erosion and sediment, post-construction storm water management, and other controls - Self-evaluation and reporting **Category (x) is one of the categories of "storm water discharges associated with industrial activity." Temporarily excluded from permitting: Category (x) construction activity operated by a municipality of <100,000 (ISTEA moratorium).*	**Ten Categories of Industrial Activity (Categories (i)-(ix),(xi))*** MSGP: • SWPPP - Site evaluation -Description of appropriate storm water management BMPs - Self-evaluation, monitoring, and reporting • If discharging into a medium or large MS4, notify the MS4 operator **Temporarily excluded from permitting: Industrial activity operated by a municipality of <100,000, except for power plants, airports, and uncontrolled sanitary landfills (ISTEA moratorium).*
Requirements that Will Be in Effect by 2003 (Phase II)	**Regulated Small MS4s** (§ 122.34 outlined here, but may choose permit coverage under § 122.26(d) instead) • Storm Water Management Program: - Public education and outreach - Public participation efforts - Illicit discharge detection and elimination program - Construction runoff control program for construction activity disturbing 1 acre or greater - Post-construction runoff control program for construction activity disturbing 1 acre or greater - Good housekeeping/pollution prevention for municipal operations • Conduct assessment of identified BMPs and measurable goals for each minimum control measure • Submit annual program assessment reports	**Small Construction Activity (≤1 and <5 Acres)** • Expected to be similar to Category (x) Construction Activity requirements above --- **Category (x) Construction Activity Operated by a Municipality of < 100,000** • Same requirements as for Category (x) Construction Activity above	**Industrial Activity Operated by a Municipality of <100,000*** • Same requirements as for Ten Categories of Industrial Activity above **Does not include: Power plants, airports, and uncontrolled sanitary landfills*

3.0 REGULATION REQUIREMENTS

After reading section 3.0, you should understand the basic components and requirements of the Storm Water Phase II Rule and the rule's compliance schedule/timeline. This information is meant to serve as a basis for understanding the details of the Rule as discussed in further sections of this guidance.

3.1 What Does The Storm Water Phase II Rule Require?

This regulation can be divided into three main components, each with distinct requirements, affecting three types of entities. These components and the requirements for each are summarized below.

Regulated Small MS4s (see section 4.0)

A certain subset of operators of small MS4s (primarily those located in urbanized areas) are required to implement programs and practices to control polluted storm water runoff from the jurisdiction serviced by the MS4. The operator must design its storm water management program to satisfy applicable CWA water quality requirements and technology standards. The program must include the development and implementation of best management practices (BMPs) and measurable goals for the following six minimum measures, and include evaluation and reporting efforts:

- Public education and outreach,
- Public participation/involvement,
- Illicit discharge detection and elimination,
- Construction site runoff control,
- Post-construction runoff control, and
- Pollution prevention/good housekeeping for municipal operations.

Two waivers from coverage are available for small MS4s brought into the program by the Phase II regulation.

Small Construction Activity (see section 5.0)

All construction operators disturbing more than 1 acre and less than 5 acres are required to apply for an NPDES storm water permit for small construction activity. EPA already regulates construction activity disturbing more than 5 acres. A construction operator is usually the developer or landowner, but can also be the contractor or another party responsible for the operational control of erosion and sediment control practices on site.

Unlike the requirements for regulated small MS4s, the requirements for small construction activity (primarily activity disturbing between 1 and 5 acres of land) are not detailed in the Phase II regulation. Rather, the requirements are left to the discretion of the NPDES permitting authority when it develops the small construction activity permit. EPA expects the permit for small construction activity to be similar to the existing storm water general permits for large construction activity regulated under the Phase I program. EPA's existing Construction General Permit includes requirements to:

- Submit a Notice of Intent (NOI);
- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP includes erosion and sediment controls, controls on waste at the site, self-inspection/monitoring, and reporting efforts; and
- Submit a Notice of Termination (NOT) when permit coverage is no longer necessary.

Two waivers from coverage are available for small construction activity.

Industrial Activity (see section 6.0)

Eleven categories of industrial activity are regulated under Phase I of the NPDES Storm Water Program. Under the Phase II Rule, no new categories of industrial activity are designated into the storm water program. The Rule does, however, include a revised no exposure exclusion that is available to all regulated categories of industrial activity (except category (x) - large construction activity) if the facility operator can certify that storm water runoff is not exposed to industrial activities.

Also, this regulation further extends the deadline to obtain permit coverage for those industrial activities operated by municipalities with populations of less than 100,000 that were temporarily exempted from permitting under the Intermodal Surface Transportation Enforcement Act (ISTEA) of 1991.

3.2 What Is the Phase II Rule's Compliance Schedule/Timeline?

The Phase II Final Rule was published in the *Federal Register* on December 8, 1999 (64 *FR* 68722). The following table lists milestones for EPA, the NPDES permitting authorities, and the regulated community under this program.

Storm Water Phase II Program Compliance Timeline

ACTIVITY	DEADLINE
Conditional No Exposure Exclusion option available in States where EPA is the NPDES permitting authority	February 7, 2000
Submission of No Exposure Certification	Every 5 years
EPA issues a menu of BMPs for small MS4 programs	October 2000
EPA issues a model general permit for small MS4s	October 2000
EPA issues guidance on measurable goals for small MS4 programs	October 2001
NPDES permitting authority determines designation of small MS4s located outside of an urbanized area that serve a jurisdiction with a population of 10,000 and population density of 1,000	By December 9, 2002; or by December 8, 2004 if apply designation criteria on a watershed basis under a comprehensive watershed plan
NPDES permitting authority determines waivers for regulated small MS4s in urbanized areas	By December 9, 2002
NPDES permitting authority issues general permits for regulated small MS4s and small construction activity	By December 9, 2002
Operators of regulated small MS4s and small construction activity designated by the rule must obtain permit coverage	By March 10, 2003
Operators of regulated small MS4s and small construction activity designated by NPDES permitting authority must obtain permit coverage	Within 180 days of notice
Temporarily exempted municipal operators of industrial activity must obtain permit coverage (ISTEA moratorium)	By March 10, 2003
The NPDES permitting authority may phase in coverage for small MS4s serving jurisdictions with a populations less than 10,000 on a schedule consistent with a State watershed permitting approach	Completion of phase-in by March 8, 2007
The regulated small MS4s must fully implement their storm water management programs	By the end of the first permit term – typically a 5-year period
Re-evaluation of the Phase II small MS4 regulations by EPA	By December 2012
NPDES permitting authority determination on a petition for designation of a non-regulated storm water discharger	Within 180 days of receipt

4.0 REGULATED SMALL MS4S

After reading section 4.0, you should understand what an MS4 is, which operators of MS4s are subject to the Phase II small MS4 regulations (including who may be waived from coverage), the small MS4 permit options, and the permit requirements for a small MS4 storm water management program. The discussion of these elements concludes with a step-by-step review of the process for compliance with the small MS4 program and possible funding options. Special concerns regarding Federal and State-operated small MS4s are also addressed.

4.1 MS4 DEFINITIONS

EPA's National Pollutant Discharge Elimination System (NPDES) storm water permitting program labels municipal separate storm sewer systems (MS4s) as either "small," " medium," or "large" for the purposes of regulation. The definitions of each are included herein. The Phase I storm water program covers medium and large MS4s. The Phase II storm water regulation covers a certain subset of small MS4s, known as "regulated small" MS4s. Regulated small MS4 coverage under the rule is discussed in section 4.2.

4.1.1 What is an "MS4"?

What constitutes a municipal separate storm sewer system (MS4) is often misinterpreted and misunderstood. The term MS4 does not solely refer to municipally-owned storm sewer systems, but rather is a term of art with a much broader application that can include, in addition to local jurisdictions, State departments of transportation, universities, local sewer districts, hospitals, military bases, and prisons. An MS4 also is not always just a system of underground pipes – it can include roads with drainage systems, gutters, and ditches. The regulatory definition of an MS4 is provided in the text box below.

According to 40 CFR 122.26(b)(8), "***municipal separate storm sewer*** means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)...including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States.

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2."

4.1.2 What is a "large" MS4?

A ***large*** **MS4** is any MS4 located in an incorporated place or county with a population of 250,000 or greater as of the 1990 Census. The Phase II Final Rule revised the original large MS4 definition (found in the 1990 Phase I regulations) by freezing it as of the 1990 Census so that no new large MS4s could be automatically designated based on the 2000 Census, or any subsequent Census. Listings of incorporated places and counties with populations of 250,000 or greater as of the 1990 Census are included in the revised Appendices F and H to Part 122, found in the Phase II Final Rule.

4.1.3 What is a "medium" MS4?

A ***medium*** **MS4** is any MS4 located in an incorporated place or county with a population between 100,000 - 249,999 as of the 1990 Census. The Phase II Final Rule revised the original medium MS4 definition (found in the 1990 Phase I regulations) by freezing it as of the 1990 Census so that no new medium MS4s could be automatically designated based on the 2000 Census, or any subsequent Census. Listings of incorporated places and counties with populations between 100,000 - 249,999 as of the 1990 Census are included in the revised Appendices G and I to Part 122, found in the Phase II Final Rule.

Important Note: Many MS4s in areas below 100,000 in population have been individually brought into the Phase I program by NPDES permitting authorities. Such already regulated MS4s are considered Phase I MS4s and are not required to develop a Phase II program.

4.1.4 What is a "small" MS4?

A ***small* MS4** is any MS4 that is not already regulated under the Phase I storm water program. Unlike the definitions of medium and large MS4s, the definition of a small MS4: 1) is not dependant on a population threshold, and 2) includes Federally-owned systems, such as military bases and veterans hospitals.

4.2 COVERAGE: Who Is Subject to the Phase II Final Rule?

4.2.1 Are All Small MS4s Covered by the Phase II Final Rule?

No. The universe of small MS4s is quite large since it includes every MS4 except for the approximately 900 medium and large MS4s already regulated under the Phase I storm water program. Only a select sub-set of small MS4s, referred to as ***regulated* small MS4s**, are covered by the Phase II Final Rule, either through automatic nationwide designation by the rule or designation on a case-by-case basis by the NPDES permitting authority.

4.2.2 How Is A Small MS4 Designated as a Regulated Small MS4 under Phase II?

A *small* MS4 can be designated as a *regulated small* MS4, and thereby be subject to the Phase II rule, in any one of the three ways explained in the following subsections.

4.2.2.1 Automatic Nationwide Designation by the Rule

The Phase II Final Rule requires "automatic" nationwide coverage of all operators of small MS4s that are located within the boundaries of a Bureau of the Census-delineated “urbanized area” (UA) based on the latest decennial Census. This doesn't just include municipal operators of small MS4s, but also universities, highway departments, and any other operator of a storm sewer system that is located fully or partially within the UA. **Refer to section 4.3 for more information on how to determine if a particular small MS4 is located within a UA.**

> **Important Note:** Only the portion of the small MS4 that is located within the UA boundaries is regulated under Phase II. For example, if a county operates a small MS4 that serves the whole county but only half of the MS4 falls within the UA boundary, then the county must obtain permit coverage (and implement a storm water management program) only for the half of the MS4 in the UA.

Once a small MS4 is designated into the program based on the UA boundaries, it cannot be waived from the program if in a subsequent UA calculation the small MS4 is no longer within the UA boundaries. An automatically designated small MS4 remains regulated unless, or until, it meets the criteria for a waiver. See section 4.4 for more information on waivers from coverage for regulated small MS4s in urbanized areas.

An operator of a small MS4 located outside of a UA boundary may be designated as a regulated small MS4 if the NPDES permitting authority determines that the small MS4's discharges cause, or have the potential to cause, an adverse impact on water quality. See sections 4.2.2.2 and 4.2.2.3 below for more information on designations by the permitting authority.

Preamble of the Phase II Final Rule: Appendix 6

A listing of governmental entities that are located either fully or partially within a UA according to the 1990 Census can be found in Appendix 6 to the Preamble of the Phase II Final Rule. The list is a general geographic reference intended to help operators of small MS4s determine whether or not they are located in a UA and, consequently, required to comply with the regulation; it is not a list of all Phase II regulated MS4s and it may contain errors. For example, the list does not include small MS4 operators such as colleges and universities, Federal prison complexes, and State highway departments located within a UA.

4.2.2.2 Potential Designation by the NPDES Permitting Authority — Required Evaluation of 10,000/1,000 Areas

The Phase II Final Rule requires the NPDES permitting authority to develop a set of designation criteria and apply them, *at a minimum*, to all small MS4s located outside of a UA that serve a jurisdiction with a population of at least 10,000 and a population density of at least 1,000 people/square mile. The permitting authority is required to *evaluate* such small MS4s but is not required to *designate* them into the program unless they meet the designation criteria.

Recommended Designation Criteria

EPA recommends in the Phase II regulations that the NPDES permitting authority use a balanced consideration of the following designation criteria on a watershed or other local basis:

- ✔ Discharge to sensitive waters;
- ✔ High population density;
- ✔ High growth or growth potential;
- ✔ Contiguity to a UA;
- ✔ Significant contributor of pollutants to waters of the United States; and
- ✔ Ineffective protection of water quality concerns by other programs.

Preamble of the Phase II Final Rule: Appendix 7

A listing of governmental entities located outside of a UA that have a population of at least 10,000 and a population density of at least 1,000 people per square mile, can be found in Appendix 7 to the Preamble of the Phase II Final Rule. Similar to Appendix 6, the list is a geographic reference only – it is not a list of regulated entities and it may contain errors. Operators of small MS4s located within a listed area could be examined by their NPDES permitting authority for potential designation into the Phase II

program. Furthermore, the NPDES permitting authority reserves the right to designate for regulation any small MS4 that is contributing pollutants to waters of the United States, whether or not its jurisdiction is found in Appendix 7.

Deadline for Designation

The NPDES permitting authority is required to designate small MS4s meeting the designation criteria by December 9, 2002, or by December 8, 2004 if a comprehensive State watershed plan is in place and the criteria are being applied on a watershed basis.

4.2.2.3 Potential Designation by the NPDES Permitting Authority — Physically Interconnected

The Phase II Final Rule requires the NPDES permitting authority to designate any small MS4 located outside of a UA that contributes substantially to the pollutant loadings of a *physically interconnected* MS4 that is permitted by the NPDES storm water program. This means the other MS4 could be a large, medium, or regulated small MS4.

Small MS4s located right outside the boundary of an urbanized area are the ones most likely to meet this criterion for designation and, therefore, should make an effort to become aware of whether they discharge pollutants directly into a regulated MS4. The sooner a small MS4 operator is prepared for potential designation and implementation of the Phase II program, the better.

> ***Physically interconnected*** means that one MS4 is connected to a second MS4 in such a way that it allows for *direct* discharges into the second system.

Deadline for Designation

The final rule does not set a deadline for designation of small MS4s meeting this criterion.

4.3 URBANIZED AREAS: What Are They and How Does a Small MS4 Operator Determine If It Is Located in One?

As discussed in section 4.2, the Phase II Final Rule covers all small municipal separate storm sewer systems (MS4s) located within an “urbanized area” (UA). Based on the 1990 Census, there are 405 UAs in the United States that cover 2 percent of total U.S. land area and contain approximately 63 percent of the Nation’s population. These numbers include Puerto Rico — the only U.S. Territory with UAs.

UAs constitute the largest and most dense areas of settlement. UA calculations delineate boundaries around these dense areas of settlement and, in doing so, identify the areas of concentrated development. UA designations are used for several

purposes in both the public and private sectors. For example, the Federal Government has used UAs to calculate allocations for transportation funding, and some planning agencies and development firms use UA boundaries to help ascertain current, and predict future, growth areas.

4.3.1. What Is the Definition of an Urbanized Area (UA)?

The Bureau of the Census determines UAs by applying a detailed set of published UA criteria (see 55 *FR* 42592, October 22, 1990) to the latest decennial census data. Although the full UA definition is complex, the Bureau of the Census' general definition of a UA, based on population and population density, is provided below.

> An ***urbanized area*** (**UA**) is a land area comprising one or more places – central place(s) – and the adjacent densely settled surrounding area – urban fringe – that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. It is a calculation used by the Bureau of the Census to determine the geographic boundaries of the most heavily developed and dense urban areas.

UA Facts:

- The basic unit for delineating the UA boundary is the census block. Census blocks are based on visible physical boundaries, such as the city block, when possible, or on invisible political boundaries, when not. An urbanized area can comprise places, counties, Federal Indian Reservations, and minor civil divisions (MCDs - towns and townships).

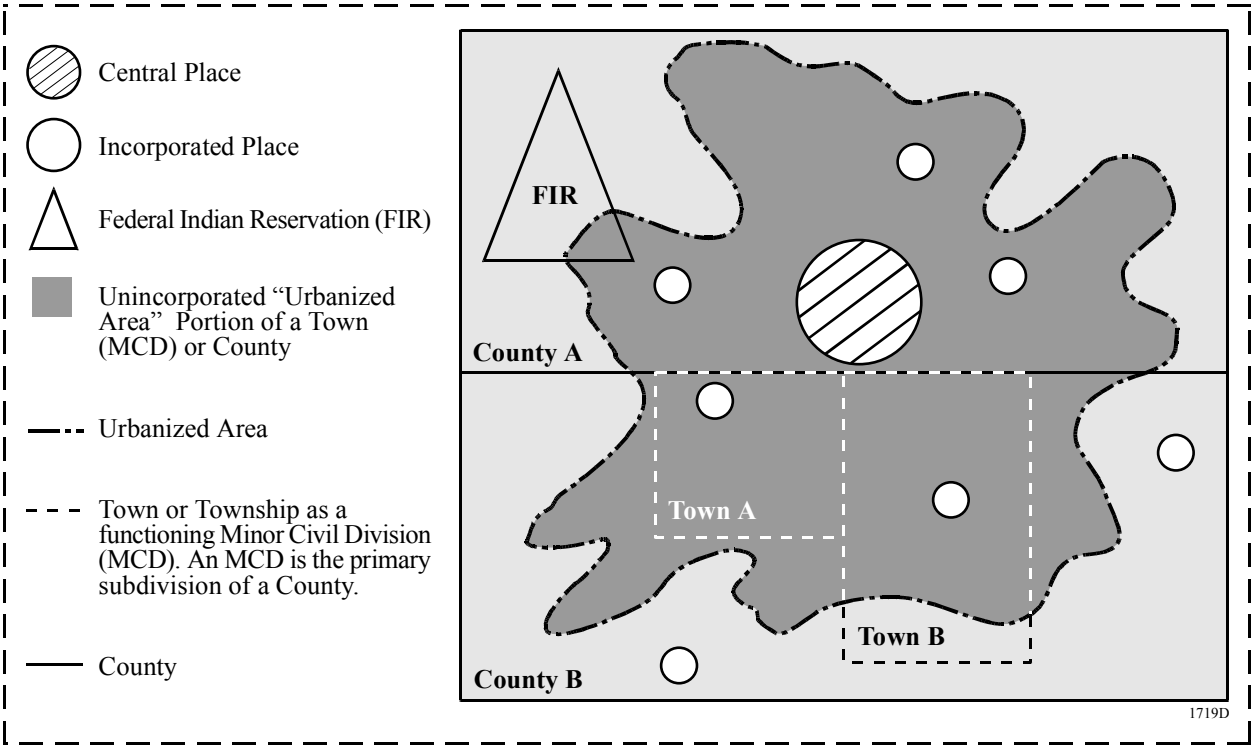
- A UA can include governmental entities of every population size: 200; 7,000; 15,000; 30,000, 200,000; or 3 million! Entities with small populations are commonly found in the urban fringe of the UA.

- Before the time of permit issuance (by December 9, 2002), new UA calculations based on the 2000 Census should be published. The regulated small MS4 universe then will be based on these new calculations.

4.3.2. What Does A UA Look Like?

The drawing below (see Figure 4-1) is a simplified UA illustration that demonstrates the concept of UAs in relation to the Phase II Final Rule. This "urbanized area" includes within its boundaries incorporated places, a portion of a Federal Indian reservation, an entire MCD, a portion of another MCD, and portions of two counties. Any and all operators of small MS4s located within the boundaries of the UA are covered under the Phase II Final Rule, regardless of political boundaries. Operators of small MS4s located outside of the UA are subject to potential designation into the Phase II MS4 program by the NPDES permitting authority, as explained in section 4.2.

Figure 4-1



4.3.3 How Can An Operator of a Regulated Small MS4 Determine If It Is Located Within a UA?

Operators of small MS4s can determine if they are located within a UA, and therefore covered under the Phase II storm water program, through the following two steps:

— STEP 1 —

Refer to a listing of incorporated places, MCDs, and counties that are located entirely or partially within a UA. Such a listing, based on the 1990 Census and including only those entities not regulated under Phase I, can be found in Appendix 6 to the Preamble of the Phase II Final Rule. If a small MS4 is located in a listed incorporated place, MCD, or county, then the operator of the small MS4 should follow step (2) below. It is important to note that Appendix 6 is general guidance only and may contain errors. For this reason, even if a particular small MS4 isn't located in a listed area, EPA recommends that the small MS4 operator follow Step 2.

— STEP 2 —

Some operators of small MS4s may find that they are located within an

entity listed in Appendix 6 but not know if their systems are within the urbanized portion of the listed entity, or they are not on the list but want to confirm their status as recommended above. In such cases, they should contact one or more of the following institutions for more detailed information on the location of UA boundaries:

❑ **The State or NPDES Permitting Authority**

***Storm Water Coordinators*:** The NPDES permitting authority may be the State or the U.S. EPA Region. The Storm Water Coordinators for each U.S. EPA Region are listed in Section 8. These regional contacts can assist with UA information and provide the names of State storm water contacts.

***State Data Centers*:** Each State's Data Center receives listings of all entities that are located in UAs, as well as detailed maps and electronic files of UA boundaries. The Bureau of the Census web site includes a list of contact names and phone numbers for the Data Center in each State at www.census.gov/sdc/www.

***State Planning/Economic/Transportation Agencies*:** These agencies typically use UAs to assess current development and forecast future growth trends and, therefore, should have detailed UA information readily available to help determine the UA boundaries in any given area.

❑ **County or Regional Planning Commissions/ Boards**

As with State agencies, these entities are likely to have detailed UA data and maps to help determine UA boundaries.

❑ **The Bureau of the Census**

***Urbanized Areas Staff*:** 301 457-1099

***Web Site*:** www.census.gov
The site provides information on purchasing UA maps and electronic files for use with computerized mapping systems. Obtain free UA cartographic boundary files (Arc/Info export format) for Geographical Information System (GIS) use at: www.census.gov:80/geo/www/cob/ua.html.

***UA Maps*:** Detailed UA maps are available for purchase with a $25 minimum order ($5 per map sheet). Each map sheet measures 36 by 42 inches. For prices and a listing of UAs, visit www.census.gov/mp/www/geo/msgeo12.html. Order from the Department of Commerce, Bureau of the Census (MS 1921), P.O. Box 277943, Atlanta, GA 30384-7943 (Phone: 301 457-4100; Toll-free fax: 1-888-249-7295).

❑ **U.S. EPA**

EPA is currently modifying a web-based geographic program called *Enviromapper* for use in determining UA boundaries. This program will allow users to enter a location (by name, zip code, or street address) and see a map that will show if the location is within a UA boundary. EPA is committed to using Enviromapper to create a tool that, someday, will be the only tool necessary to determine the location of UA boundaries. Information about *Enviromapper* will be available at www.epa.gov/owm/phase2.

4.3.4 How Will the Year 2000 Census Affect the Determination of Status as a Regulated Small MS4?

The listing of incorporated places, MCDs, and counties located within UAs in the United States and Puerto Rico, found in Appendix 6, is based on the 1990 Census. New listings for UAs based on the 2000 Census are scheduled to be available by August of 2001. Once the official 2000 Census listings are published by the Bureau of the Census, operators of small MS4s located within the revised boundaries of former 1990 UAs, or in any newly defined 2000 UAs, become regulated small MS4s and must develop a storm water management program.

Any additional automatic designations of small MS4s based on subsequent census years is governed by the Bureau of the Census' definition of a UA in effect for that year and the UA boundaries determined as a result of the definition.

Once a small MS4 is designated into the Phase II storm water program based on the UA boundaries, it can not be waived from the program if in a subsequent UA calculation the small MS4 is no longer within the UA boundaries. An automatically designated small MS4 will remain regulated unless, or until, it meets the criteria for a waiver.

4.4 WAIVERS: Which Regulated Small MS4s May Obtain a Waiver From Coverage?

Two waiver options are available to operators of regulated small MS4s in urbanized areas if the NPDES permitting authority determines that their discharges do not cause, or have the potential to cause, water quality impairment.

> **Important Note:** The waivers are granted by the NPDES permitting authority, the operator of the regulated small MS4 can not determine for itself that it meets the waiver criteria. If the permitting authority is not proactive in assessing small MS4s for potential waivers, an operator may petition for a waiver assessment.

If a permitting authority decides to grant waivers, it is required to do so by December 9, 2002 to coincide with the expected date of the small MS4 permit issuance. The

permitting authority is also required to periodically review any waivers granted to small MS4 operators to determine whether any information required for granting the waiver has changed. Minimally, such a review needs to be conducted once every five years. The waiver options are described in the following two subsections.

Deadline for Waivers

The NPDES permitting authorities are required to make their waiver determinations by March 9, 2002 to coincide with the expected issuance of their small MS4 general permit. If the permit authority chooses to phase in permit coverage based on a comprehensive watershed plan (see section 4.5.2.2), then regulated small MS4s may be waived on the same schedule. The phase-in of permit coverage and waivers is to be completed no later than March 8, 2007.

4.4.1 Option 1: Less than 1,000 Population in a UA

The first waiver option applies where:

(1) the jurisdiction served by the system is less than 1,000 people;

(2) the system is not contributing substantially to the pollutant loadings of a physically interconnected regulated MS4; and

(3) if the small MS4 discharges any pollutants identified as a cause of impairment of any water body to which it discharges, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established "total maximum daily load" (TMDL) that addresses the pollutant(s) of concern.

> ***TMDLs*** are water quality assessments that determine the source or sources of pollutants of concern for a particular waterbody, consider the maximum amount of pollutants the waterbody can assimilate, and then allocate to each source a set level of pollutants that it is allowed to discharge (i.e., a "wasteload allocation"). Small MS4s that are not given a wasteload allocation would meet the third criterion above.

The third criterion of this waiver option need only be met if the small MS4 is discharging into a impaired water body and the discharge contains a pollutant or pollutants that are the cause of the impairment (i.e., the "pollutants of concern").

4.4.2 Option 2: Less than 10,000 Population in a UA

The second waiver option applies where:

(1) the jurisdiction served by the system is less than 10,000 people;

(2) an evaluation of all waters of the U.S. that receive a discharge from the system shows that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or an equivalent analysis; and

(3) it is determined that future discharges from the small MS4 do not have the potential to result in exceedances of water quality standards.

> ***Pollutants of Concern*** include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment in any water body to which the MS4 discharges.

This waiver option differs from the first option in that: 1) it applies to a larger jurisdiction size (up to 10,000 rather than 1,000), 2) it requires a determination that the discharges are not affecting the receiving water body, whether the water body is impaired or not (in the first option an assessment is only necessary if the water body is impaired and the MS4 is discharging a pollutant of concern), 3) the determination must be based on a TMDL or an equivalent analysis (the first option does not allow for an equivalent analysis), and 4) an assessment of the impacts of future discharges must be performed (no such assessment is necessary under the first option).

4.5 PERMITTING OPTIONS: What Permitting Choices are Available?

The Storm Water Phase II Final Rule requires operators of a particular subset of small MS4s in urbanized areas to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage because their storm water discharges are considered “point sources” of pollution. All point source discharges, unlike nonpoint sources such as agricultural runoff, are required under the Clean Water Act (CWA) to be covered by federally enforceable NPDES permits. Those MS4s already permitted under the NPDES Phase I storm water program, even MS4s serving less than 100,000 people, are not required to be permitted under the Phase II storm water program.

NPDES storm water permits are issued by an NPDES permitting authority, which may be an NPDES-authorized State or a U.S. EPA Region in non-authorized States. Once a permit application is submitted by the operator of a regulated small MS4 and a permit is obtained, the conditions of the permit must be satisfied (i.e., development and implementation of a storm water management program) and periodic reports must be submitted on the status and effectiveness of the program. This section addresses the flexible permit options the Phase II regulations allow for the regulated small MS4 operator, as well as for the permitting authority. The permit requirements are discussed in section 4.6.

4.5.1 For Regulated Small MS4 Operators

4.5.1.1 The Types of Permit Coverage Available

Unlike the Phase I program that requires individual permits for medium and large MS4s, the Phase II approach allows operators of regulated small MS4s to choose from as many as three permitting options as listed below. Each NPDES permitting authority reserves the authority to determine, however, which options are available to the regulated small MS4s in their jurisdiction.

1) General Permits

General permits are strongly encouraged by EPA. The Phase II program has been designed specifically to accommodate a general permit approach.

General permits prescribe one set of requirements for all applicable permittees. General permits are drafted by the NPDES permitting authority, then published for public comment before being finalized and issued.

A Notice of Intent (NOI) serves as the application for the general permit. The regulated small MS4 operator complies with the permit application requirements by submitting an NOI to the NPDES permitting authority that describes the storm water management plan, including best management practices (BMPs) and measurable goals. The operator has the flexibility to develop an individualized storm water program that addresses the particular characteristics and needs of its system, provided the requirements of the general permit are satisfied.

For general permit coverage, the regulated small MS4 operator must follow the Phase II permit application requirements (see section 4.6.2).

2) Individual Permits

Individual permits are required for Phase I medium and large MS4s, but not recommended by EPA for Phase II program implementation.

Individual permits prescribe a particular set of requirements for a particular permittee or a group of co-permittees. Individual permits require the submission of a more comprehensive permit application than an NOI that is submitted under a general permit. Once the permit application is received, an individual permit is drafted by the NPDES permitting authority, then published for public comment before being finalized and issued.

The Phase II rule allows a regulated small MS4 to submit an individual application for coverage under either the:

- Phase II MS4 regulation (see § 122.34 of the Phase II rule), or
- Phase I MS4 regulation (see 40 CFR §122.26(d)).

3) Modification of an Existing Phase I Individual Permit – A Co-Permittee Option with Medium and Large MS4s

The operator of a regulated small MS4 could participate as a limited co-permittee in a neighboring Phase I MS4's storm water management program by seeking a modification of the existing Phase I individual permit. As a limited co-permittee the small MS4 operator would be responsible for compliance with the permit's conditions applicable to its jurisdiction.

Note: A list of Phase I medium and large MS4s can be obtained from the EPA Office of Wastewater Management (OWM) or downloaded from the OWM web site.

The permittee must comply with the applicable terms of the modified Phase I individual permit rather than the minimum control measures in the Phase II Final Rule.

4.5.1.2 Co-permittee with Another Operator of a Regulated Small MS4

Section 4.5.1.1 explained the permitting option of a modification of an existing Phase I individual permit in order to be a co-permittee with a medium or large MS4. Regulated small MS4 operators may also choose to share responsibilities for meeting the Phase II program requirements with another regulated small MS4 operator under a general or individual permit. Those operators choosing to do so may submit jointly an NOI or individual permit application that identifies who will implement which minimum measures within the area served by the MS4s.

4.5.1.3 Relying on Another Entity to Satisfy One or More of the Minimum Control Measures

Under either a general or individual permit, the Phase II small MS4 permittee has the option of relying on other entities that are already performing one or more of the minimum control measures to implement the measure(s) on the permittee's behalf. This is only allowable where the existing control measure, or component thereof, is at least as stringent as the Phase II rule requirements (under § 122.34(b)) and the other entity has agreed to the arrangement.

For example, a county may already have an illicit discharge detection and elimination program in place and may allow an operator of a regulated small MS4 within the county's jurisdiction to rely on the county program instead of formulating and implementing a new program. In such a case, the permittee would not need to

implement the particular measure, but would still be ultimately responsible for its effective implementation. For this reason, EPA recommends that the permittee enter into a legally binding agreement with the other entity. If the permittee chooses to rely on another entity, they must note this in their permit application and subsequent reports.

Note: Also, the other entity does not necessarily need to be a governmental entity. For example, a permittee could rely on a non-profit organization that is performing public education efforts on environmental issues to satisfy the public education and outreach minimum measure.

A Phase II permittee also has the option to rely on another entity to satisfy all of the permittee's small MS4 permit obligations – but only if the other entity is a governmental entity permitted under the NPDES storm water program. Should this option be chosen, the permittee must note this in its NOI, but does not need to file the otherwise required periodic reports on the status of the program. Again, it is important to note that the permittee would remain ultimately liable under the small MS4 permit. This option is particularly beneficial for operators that serve a low population, have limited resources or legal authority, or are surrounded by an NPDES regulated municipality. For example, let's assume a college campus or a veteran's hospital are operators of small MS4s and they are located in the middle of a Phase II regulated city. Negotiating with the city to implement the storm water management program for them in their jurisdictions could be a cost-effective and less burdensome option than for each to implement their own programs.

4.5.2 For the NPDES Permitting Authority

4.5.2.1 Alternative Options for Writing Permit Requirements

Two permitting options tailored to minimize duplication of effort by the regulated small MS4 permittee can be incorporated into the general or individual permit by the NPDES permitting authority:

1) Recognizing Another Governmental Entity's Program

The permitting authority can recognize in a small MS4 permit that another governmental entity is responsible under an NPDES permit for implementing any or all of the minimum control measures. In such a case, responsibility for implementation of the measure(s) would rest with the other governmental entity, thereby relieving the small MS4 permittee of its responsibility to implement that particular measure(s). See Table 4-1 for examples of both this option and the following option.

STORM WATER PHASE II RULE SMALL MS4 FLEXIBLE PERMITTING OPTIONS

	Referencing a QUALIFYING LOCAL PROGRAM (QLP)	RECOGNIZING an NPDES-Regulated Entity	RELYING on Another Entity	CO-PERMITTEE with an NPDES-Regulated Entity
NPDES PERMITTING AUTHORITY Responsibilities	• PA assesses local, State, and Tribal NPDES and non-NPDES programs to determine if their requirements are equivalent to one or more Phase II minimum measures for regulated small MS4s • PA chooses whether to reference a QLP in small MS4 permit. Requires permittee to follow requirements of QLP rather than new permit requirements. • PA does not need to notify the administrator of the QLP or obtain permission since referencing the QLP has no bearing/no affect on the administrator.	• PA assesses entities that are, or will be, performing the equivalent of 1 or more of the small MS4 minimum measures under an NPDES permit. • PA chooses whether to recognize such an entity in a small MS4 permit.	N/A	N/A
SMALL MS4 OPERATOR Responsibilities	• The operator should already be complying with any QLP referenced in the permit. • Compliance with the QLP is considered compliance with the NPDES permit; therefore operator held liable if doesn't comply with the QLP.	• Operator has no responsibility to perform the measure(s) that is being done by the recognized entity. • Not held liable if the other entity fails to perform the measure effectively; however, PA may then require the operator to implement the measure itself.	• Operator chooses, under its own permit, whether to rely on another entity to implement 1 or more minimum measure on its behalf – can be a non-NPDES regulated entity. • Operator notes in NOI or indiv. permit application that it is relying on another entity to implement a measure. • Remain liable if other entity fails to perform the measure effectively.	• Operator chooses whether to be a co-permittee with another regulated MS4 and submits a single NOI or individual permit application • The operators determine who will do what and include this information in the permit application
EXAMPLES	The QLP in the small MS4 permit could be a State program that requires MS4 operators to detect & eliminate illicit discharges into their systems.	A county doing educational outreach for the whole county under a Phase I NPDES permit could be recognized, thereby relieving all small MS4s in the county from having to have their own educational outreach programs.	1. An environmental group is doing educational outreach on the impacts of storm water runoff. 2. A county is already implementing a construction runoff control program under a Phase I NPDES permit.	

2) Referencing a Qualifying Local Program

The NPDES permitting authority can include conditions in a small MS4 permit that direct a permittee to follow the requirements of an existing qualifying local program rather than the requirements of particular minimum control measure(s). A qualifying local program is defined as a local, State or Tribal municipal storm water program that imposes requirements that are equivalent to those of the Phase II MS4 minimum measures (as found in § 122.34(b) of the rule). Unlike in Option 1 above, under this option the permittee remains responsible for the implementation of the minimum measure through its compliance with the qualifying local program.

4.5.2.2. Alternative Option for Permit Coverage: Phase-in Coverage for Regulated Small MS4s with Populations under 10,000

Permitting authorities may phase-in permit coverage for regulated small MS4s serving jurisdictions with a population under 10,000 on a schedule consistent with a State watershed permitting approach. Under this alternative option, the permitting authority must develop and implement a schedule to phase-in permit coverage for approximately 20 percent annually of all regulated small MS4s that qualify, completing the phase-in schedule in no more than five years. In such a case, the regulated small MS4 operators would be notified by the permitting authority concerning the operator's deadlines for permit coverage.

Deadlines for Phase-In

- Permitting authorities are required to have their phase-in schedule approved by the USEPA Regional Administrator no later than December 10, 2001.
- Under the phase-in option, all regulated small MS4s are required to have coverage under an NPDES permit no later than March 8, 2007.

4.6 REQUIREMENTS: What Requirements Are Regulated Small MS4s Subject To?

A regulated small MS4 operator is required to submit a permit application and obtain coverage under a NPDES storm water permit. Under the permit, the operator will be required to develop and implement a storm water management program that includes six minimum control measures, evaluation/assessment and reporting efforts, and recordkeeping, as described herein. This section begins by highlighting the standards an operator must meet to ensure compliance with the Phase II regulations.

4.6.1 Applicable Standards

A Phase II small MS4 operator must design a storm water management program so that it:

❑ Reduces the discharge of pollutants to the “maximum extent practicable”

(MEP);

- ❏ Protects water quality; and
- ❏ Satisfies the appropriate water quality requirements of the Clean Water Act.

The standard of MEP is the same standard applied to Phase I medium and large MS4 programs. There is no regulatory definition of MEP in order to allow the permitting authority and regulated MS4s maximum flexibility in their interpretation of it as appropriate.

Compliance with the technical standard of MEP requires the successful implementation of approved BMPs. The Phase II Final Rule considers narrative effluent limitations that require the implementation of BMPs and the achievement of measurable goals as the most appropriate form of effluent limitations to achieve the protection of water quality, rather than requiring that storm water discharges meet numeric effluent limitations.

EPA intends to issue Phase II NPDES permits consistent with its August 1, 1996, Interim Permitting Approach policy, which calls for BMPs in first-round storm water permits and expanded or better tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations should be incorporated into the storm water permit. Monitoring is not required under the Phase II Rule, but the NPDES permitting authority has the discretion to require monitoring if deemed necessary.

4.6.2 Permit Application Requirements

The permit application requirements differ depending on the type of permit chosen. The following subsections describe the applicable requirements for each type of permit option allowable under the Phase II regulation.

Deadline for Submission of Permit Application

The deadline for submission of each type of permit application is the same – it must be done no later than March 10, 2003 unless the NPDES permitting authority chooses to phase-in permit coverage on a watershed basis and establishes other deadlines (see section 4.5.2.2).

4.6.2.1 General Permit Under Phase II Regulations

Operators of regulated small MS4s are required to submit in their NOI the following information:

- ❑ Best management practices (BMPs) for each of the six minimum control measures:

  ❶ Public education and outreach on storm water impacts
  ❷ Public participation/involvement
  ❸ Illicit discharge detection and elimination
  ❹ Construction site storm water runoff control
  Post-construction storm water management in new development/ redevelopment
  ❻ Pollution prevention/good housekeeping for municipal operations

- ❑ Measurable goals for each minimum control measure (i.e, narrative or numeric standards used to gauge program effectiveness);

- ❑ Estimated months and years in which actions to implement each measure will be undertaken, including interim milestones and frequency; and

- ❑ The person or persons responsible for implementing or coordinating the storm water program.

The operator of a regulated small MS4 has the flexibility to determine the BMPs and measurable goals, for each minimum control measure, that are most appropriate for the system. The chosen BMPs and measurable goals, submitted in the permit application, become the required storm water management program; however, the NPDES permitting authority can require changes in the mix of chosen BMPs and measurable goals if all or some of them are found to be inconsistent with the provisions of the Phase II Final Rule. Likewise, the permittee can change its mix of BMPs if it determines that the program is not as effective as it could be. Section 4.6.2 fully describes the minimum control measures, including sample BMPs and measurable goals for each, while section 4.6.3 describes the permit requirements concerning evaluation/assessment and recordkeeping activities.

4.6.2.2 Individual Permit Under the Phase II Regulation

For individual permit coverage under Phase II, the regulated small MS4 operator must follow the requirements of 40 CFR § 122.21(f) and the Phase II permit application requirements as described in section 4.6.2.1 above. The operator must also provide an estimate of the square mileage served by the system and any additional information requested by the NPDES permitting authority. A storm sewer map that satisfies the requirements of § 122.34(b)(3)(i) of the Phase II rule will satisfy the map requirements of § 122.21(f)(7).

4.6.2.3 Individual Permit Under the Phase I Regulation

For individual permit coverage under Phase I, the regulated small MS4 operator must follow the permit application requirements detailed at 40 CFR § 122.26(d). The operator must submit both Part 1 and Part 2 of the application requirements in §§ 122.26(d)(1) and (2) by March 10, 2003. The operator would not need to submit the information required by §§ 122.26(d)(1)(ii) and (d)(2) regarding legal authority unless it wanted the permitting authority to take that information into account when developing the individual permit.

4.6.2.4 Modification of an Existing Phase I Individual Permit

Under this permit option, the operator of a regulated small MS4 must follow Phase I permit application requirements in § 122.26(d), with some exclusions, rather than Phase II permit application requirements. The operator would not need to follow the application requirements of §§ 122.26(d)(1)(iii) and (iv) and (d)(2)(iii) – *discharge characterization*. The operator may satisfy the requirements in §§ 122.26(d)(1)(v) and (d)(2)(iv) – *identification of a management program* – by referring to the Phase I MS4's storm water management program.

EPA Recommendations

In referencing a Phase I's MS4's storm water management program, the operator should briefly describe how the existing plan will address discharges from the small MS4 or would need to be supplemented in order to adequately address the small MS4 discharges. The small MS4 operator should explain their role in coordinating storm water pollutant control activities in their MS4 service area and detail the resources available to accomplish the plan.

If a small MS4 is considering this option, it should find out when the Phase I MS4's permit is scheduled for renewal and become thoroughly familiar with the Phase I MS4's permit conditions. This co-permitting approach will be most successful if both MS4s have had thorough discussions of their storm water programs and if the small MS4 submits it's application at the time that the Phase I MS4 is submitting its reapplication.

4.6.2 Program Requirements: The Six Minimum Control Measures

If coverage is obtained under a general permit or an individual permit under the Phase II regulations, the operator of a regulated small MS4 is required to implement a storm water management program that includes, at a minimum, the six minimum control measures described in the following subsections. As you read these subsections, keep in mind that the operator has a great deal of flexibility in determining the best management practices they will use to accomplish each measure. The rule allows the operators to chose the BMPs and measurable goals for each measure as appropriate for their particular MS4 service area – as long as the chosen BMPs and measurable goals result in effective control of pollutants in storm water runoff. Otherwise, the permitting authority may require changes in the chosen mix of BMPs and measurable goals to result in a more effective program.

4.6.2.1 Public Education and Outreach on Storm Water Impacts

Why Is Public Education and Outreach Necessary?

An informed and knowledgeable community is crucial to the success of a storm water management program since it helps to ensure the following:

Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial when operators of small MS4s attempt to institute new funding initiatives for the program or seek volunteers to help implement the program; and

Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

What Is Required?

To satisfy this minimum control measure, the operator of a regulated small MS4 must:

- ❑ Implement a public education program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of storm water discharges on local waterbodies and the steps that can be taken to reduce storm water pollution; and

- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e., the program actions/activities), and measurable goals are suggested below.

What Are Some Guidelines for Developing and Implementing This Measure?

Three main action areas are important for successful implementation of a public education and outreach program:

❶ ***Forming Partnerships***
Operators of regulated small MS4s are encouraged to enter into partnerships with other governmental entities to fulfill this minimum control measure's requirements. It is generally more cost-effective to use an existing program, or to develop a new regional or state-wide education program, than to have numerous operators developing their own local programs. Operators also are encouraged to seek assistance from non-governmental organizations (e.g., environmental, civic, and industrial organizations), since many already have educational materials and perform outreach activities.

❷ ***Using Educational Materials and Strategies***

Operators of regulated small MS4s may use storm water educational information provided by their State, Tribe, EPA Region, or environmental, public interest, or trade organizations instead of developing their own materials. Operators should strive to make their materials and activities relevant to local situations and issues, and incorporate a variety of strategies to ensure maximum coverage. Some examples include:

Brochures or fact sheets for general public and specific audiences;

Recreational guides to educate groups such as golfers, hikers, paddlers, climbers, fishermen, and campers;

Alternative information sources, such as web sites, bumper stickers, refrigerator magnets, posters for bus and subway stops, and restaurant placemats;

A library of educational materials for community and school groups;

Volunteer citizen educators to staff a ***public education task force;***

Event participation with educational displays at home shows and community festivals;

Educational programs for school-age children;

Storm drain stenciling of storm drains with messages such as “Do Not Dump - Drains Directly to Lake;”

Storm water hotlines for information and for citizen reporting of polluters;

Economic incentives to citizens and businesses (e.g., rebates to homeowners purchasing mulching lawnmowers or biodegradable lawn products);and

Tributary signage to increase public awareness of local water resources.

❸ ***Reaching Diverse Audiences***

The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children. Printing posters and brochures in more than one language or posting large warning signs (e.g., cautioning against fishing or swimming) near storm sewer outfalls are methods that can be used to reach audiences less likely to read standard materials. Directing materials or outreach programs toward specific groups of commercial, industrial, and institutional entities likely to have significant storm water impacts is also recommended. For example, information could be provided to restaurants on the effects of grease clogging storm drains and to auto garages on the effects of dumping used oil into storm drains.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year.....	Brochures developed (bilingual, if appropriate) and distributed in water utility bills; a storm water hotline in place; volunteer educators trained.
2 years.....	A web site created school curricula developed; storm drains stenciled.
3 years.....	A certain percentage of restaurants no longer dumping grease and other pollutants down storm sewer drains.
4 years.....	A certain percentage reduction in litter or animal waste detected in discharges.

4.6.2.2 Public Participation/Involvement

Why Is Public Participation and Involvement Necessary?

EPA believes that the public can provide valuable input and assistance to a regulated small MS4's municipal storm water management program and, therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program because it allows for:

Broader public support since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation;

Shorter implementation schedules due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers;

A broader base of expertise and ***economic benefits*** since the community can be a valuable, and free, intellectual resource; and

A conduit to other programs as citizens involved in the storm water program development process provide important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis, as encouraged by EPA.

What Is Required?

To satisfy this minimum control measure, the operator of a regulated small MS4 must:

- ❑ Comply with applicable State, Tribal, and local public notice requirements; and

- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Possible implementation approaches, BMPs (i.e., the program actions and activities), and measurable goals are described below.

What Are Some Guidelines for Developing and Implementing This Measure?

Operators of regulated small MS4s should include the public in developing, implementing, and reviewing their storm water management programs. The public participation process should make every effort to reach out and engage all economic and ethnic groups. EPA recognizes that there are challenges associated with public involvement. Nevertheless, EPA strongly believes that these challenges can be addressed through an aggressive and inclusive program. Challenges and example practices that can help ensure successful participation are discussed below.

Implementation Challenges

The best way to handle common notification and recruitment challenges is to know the audience and think creatively about how to gain its attention and interest. Traditional methods of soliciting public input are not always successful in generating interest, and subsequent involvement, in all sectors of the community. For example, municipalities often rely solely on advertising in local newspapers to announce public meetings and other opportunities for public involvement. Since there may be large sectors of the population who do not read the local press, the audience reached may be limited. Therefore, alternative advertising methods should be used whenever possible, including radio or television spots, postings at bus or subway stops, announcements in neighborhood newsletters, announcements at civic organization meetings, distribution of flyers, mass mailings, door-to-door visits, telephone notifications, and multilingual announcements. These efforts, of course, are tied closely to the efforts for the public education and outreach minimum control measure.

In addition, advertising and soliciting for help could and should be targeted at specific population sectors, including ethnic, minority, and low-income communities; academia and educational institutions; neighborhood and community groups; outdoor recreation groups; and business and industry. The goal is to involve a diverse cross-section of people who could offer a multitude of concerns, ideas, and connections during the program development process.

Possible Practices (BMPs)

There are a variety of practices that could be incorporated into a public participation and involvement program, such as:

Public meetings/citizen panels allow citizens to discuss various viewpoints and provide input concerning appropriate storm water management policies and BMPs;

Volunteer water quality monitoring gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means of collecting water quality data;

Volunteer educators/speakers who can conduct workshops, encourage public participation, and staff special events;

Storm drain stenciling is an important and simple activity that concerned citizens, especially students, can do;

Community clean-ups along local waterways, beaches, and around storm drains;

Citizen watch groups can aid local enforcement authorities in the identification of polluters; and

"Adopt A Storm Drain" programs encourage individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through storm drains.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, would greatly depend on the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year.....	Notice of a public meeting in several different print media and bilingual flyers; citizen panel established; volunteers organized to locate outfalls/illicit discharges and stencil drains.
2 years.....	Final recommendations of the citizen panel; radio spots promoting program and participation.
3 years.....	A certain percentage of the community participating in community clean-ups.
4 years.....	Citizen watch groups established in a certain percentage of neighborhoods; outreach to every different population sector completed.

4.6.2.3 Illicit Discharge Detection and Elimination

What Is An "Illicit Discharge"?

Federal regulations define an illicit discharge as "...any discharge to an MS4 that is not composed entirely of storm water..." with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities. Illicit discharges (see Table 4-2) are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water wastes. It is important to note that "illicit" does not mean "illegal." Not every illicit discharge is necessarily a prohibited illegal discharge.

Why Are Illicit Discharge Detection and Elimination Efforts Necessary?

Table 4-2

Sources of Illicit Discharges
Sanitary wastewater
Effluent from septic tanks
Car wash wastewaters
Improper oil disposal
Radiator flushing disposal
Laundry wastewaters
Spills from roadway accidents
Improper disposal of auto and household toxics

Discharges from MS4s often include wastes and wastewater from non-storm water sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

What Is Required?

Recognizing the adverse effects illicit discharges can have on receiving waters, the final rule requires an operator of a regulated small MS4 to develop and implement an illicit discharge detection and elimination program. This program must include the following:

- ❑ A storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;

- ❏ Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, Tribal, or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions;

- ❏ A plan to detect and address non-storm water discharges, including illegal dumping, into the MS4;

- ❏ The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste; and

- ❏ The determination of appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e., the program actions/activities), and measurable goals are suggested below.

Does This Measure Need to Address All Illicit Discharges?

No. The illicit discharge detection and elimination program does not need to address the following categories of non-storm water discharges or flows unless the operator of the regulated small MS4 identifies them as significant contributors of pollutants to its MS4:

- ❏ Water line flushing
- ❏ Landscape irrigation
- ❏ Diverted stream flows
- ❏ Rising ground waters
- ❏ Uncontaminated ground water infiltration
- ❏ Uncontaminated pumped ground water
- ❏ Discharges from potable water sources
- ❏ Foundation drains
- ❏ Air conditioning condensation
- ❏ Irrigation water
- ❏ Springs
- ❏ Water from crawl space pumps
- ❏ Footing drains
- ❏ Lawn watering
- ❏ Individual residential car washing
- ❏ Flows from riparian habitats and wetlands
- ❏ Dechlorinated swimming pool discharges
- ❏ Street wash water.

What Are Some Guidelines for Developing and Implementing This Measure?

The objective of the illicit discharge detection and elimination minimum control measure is to have regulated small MS4 operators gain a thorough awareness of their systems. This awareness allows them to determine the types and sources of illicit discharges entering their system, and establish the legal, technical, and educational means needed to eliminate these discharges. Permittees could meet these objectives

in a variety of ways depending on their individual needs and abilities, but some general guidance for each requirement is provided below.

The Map

The storm sewer system map is meant to demonstrate a basic awareness of the intake and discharge areas of the system. It is needed to help determine the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the particular waterbodies these flows may be affecting. An existing map, such as a topographical map, on which the location of major pipes and outfalls can be clearly presented would demonstrate such an awareness.

EPA recommends collecting all existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps), and then conducting field surveys to verify locations. It probably will be necessary to walk (i.e., wade through small receiving waters or use a boat for larger waters) the streambanks and shorelines for visual observation. More than one trip may be needed to locate all outfalls.

Legal Prohibition and Enforcement

EPA recognizes that some permittees may have limited authority under State, Tribal or local law to establish and enforce an ordinance, or other regulatory mechanism, prohibiting illicit discharges. In such a case, the permittee is encouraged to obtain the necessary authority, if at all possible. Otherwise, the NPDES permitting authority assumes responsibility for implementation of this component of the minimum measure, yet the permittee would remain ultimately responsible for the quality of its MS4 discharge. Model ordinances, including examples of amendments to local codes or existing ordinances, will be provided in the Phase II storm water guidance for regulated small MS4s, which is part of EPA's planned implementation "tool box" for the rule.

The Plan

The plan to detect and address illicit discharges is the central component of this minimum control measure. The plan is dependant upon several factors, including the permittee's available resources, size of staff, and degree and character of its illicit discharges. EPA envisions a plan similar to the one recommended for use in meeting Michigan's general storm water NPDES permit for small MS4s. As guidance only, the four steps of a recommended plan are outlined below:

❶ **Locate Problem Areas**

EPA recommends that priority areas be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines). Some methods that could be used to locate problem areas include: public complaints; visual screening; water sampling from manholes and outfalls during dry weather; and use of infrared and thermal photography.

❷ **Find the Source**

Once a problem area or discharge is found, additional efforts usually would be

necessary to determine the source of the problem. Some methods that could be used to find the source of the illicit discharge include: dye-testing buildings in problem areas; dye- or smoke-testing buildings at the time of sale; tracing the discharge upstream in the storm sewer; employing a certification program that shows that buildings have been checked for illicit connections; implementing an inspection program of existing septic systems; and using video to inspect the storm sewers.

❸ **Remove/Correct Illicit Connections**
Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action.

❹ **Document Actions Taken**
As a final step, all actions taken under the plan should be documented. Doing so would illustrate that progress is being made to eliminate illicit connections and discharges. Documented actions should be included in the required annual reports and include information such as: the number of outfalls screened; any complaints received and corrected; the number of discharges and quantities of flow eliminated; and the number of dye or smoke tests conducted.

Educational Outreach

Outreach to public employees, businesses, property owners, the general community, and elected officials regarding ways to detect and eliminate illicit discharges is an integral part of this minimum measure that will help gain support for the permittee's storm water program. Suggested educational outreach efforts include:

- Developing ***informative brochures, and guidances*** for specific audiences (e.g., carpet cleaning businesses) and school curricula;
- Designing a program to ***publicize and facilitate public reporting*** of illicit discharges;
- ***Coordinating volunteers*** for locating, and visually inspecting, outfalls or to stencil storm drains; and
- Initiating ***recycling programs*** for commonly dumped wastes, such as motor oil, antifreeze, and pesticides.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that would fully address the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could

include the following measurable goals:

Target Date	Activity
1 year.....	Sewer system map completed; recycling program for household hazardous waste in place.
2 years.....	Ordinance in place; training for public employees completed; a certain percentage of sources of illicit discharges determined.
3 years.....	A certain percentage of: illicit discharges detected; illicit discharges eliminated; and households participating in quarterly household hazardous waste special collection days.
4 years.....	Most illicit discharge sources detected and eliminated.

The educational outreach measurable goals for this minimum control measure could be combined with the measurable goals for the Public Education and Outreach minimum control measure.

4.6.2.4 Construction Site Storm Water Runoff Control

Why Is The Control of Construction Site Runoff Necessary?

Polluted storm water runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Of the pollutants listed in Table 4-3, sediment is usually the main pollutant of concern. Sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to our nation's waters. For example, excess sediment can quickly fill rivers and lakes, requiring dredging and destroying aquatic habitats.

Table 4-3

Pollutants Commonly Discharged From Construction Sites
Sediment
Solid and sanitary wastes
Phosphorous (fertilizer)
Nitrogen (fertilizer)
Pesticides
Oil and grease
Concrete truck washout
Construction chemicals
Construction debris

What Is Required?

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in storm water runoff to their MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. The small MS4 operator is required to:

- ❑ Have an ordinance or other regulatory mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites;

- ❑ Have procedures for site plan review of construction plans that consider potential water quality impacts;

- ❑ Have procedures for site inspection and enforcement of control measures;

- ❑ Have sanctions to ensure compliance (established in the ordinance or other regulatory mechanism);

- ❑ Establish procedures for the receipt and consideration of information submitted by the public; and

- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Suggested BMPs (i.e., the program actions/activities) and measurable goals are presented below.

What Are Some Guidelines for Developing and Implementing This Measure?

Further explanation and guidance for each component of a regulated small MS4's construction program is provided below.

Regulatory Mechanism

Through the development of an ordinance or other regulatory mechanism, the small MS4 operator needs to establish a construction program that requires controls for polluted runoff from construction sites with a land disturbance of greater than or equal to one acre. Because there may be limitations on regulatory legal authority, the small MS4 operator is required to satisfy this minimum control measure only to the maximum extent practicable and allowable under State, Tribal, or local law. If an operator is unable to establish an enforceable construction program due to a lack of legal authority, and is unsuccessful in trying to obtain the necessary authority, the NPDES permitting authority would then assume responsibility.

EPA intends to develop a model ordinance that a small MS4 operator could use as a basis for its construction program. Alternatively, amendments to existing erosion and sediment control programs, or other ordinances, can also provide the basis for the program.

Site Plan Review

The small MS4 operator is required to include in its construction program requirements for the implementation of appropriate BMPs on construction sites to control erosion and sediment, as well as waste at the site. To determine if a construction site is in compliance with such provisions, the small MS4 operator should review the site plans submitted by the construction site operator before ground is broken.

Site plan review aids in compliance and enforcement efforts since it alerts the small MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities. The tracking of sites is useful not only for the small MS4 operator's recordkeeping and reporting purposes, which will be required activities under their NPDES storm water permit (see Fact Sheet 2.9), but also for members of the public interested in ensuring that the sites are in compliance.

Inspections and Penalties

Once construction commences, the BMPs should be in place and the small MS4 operator's enforcement activities should begin. To ensure that the BMPs are properly installed, the small MS4 operator is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Procedures could include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality. Inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings, or assess penalties. To conserve staff resources, one possible option for small MS4 operators could be to have these inspections performed by the same inspector that visits the sites to check compliance with health and safety building codes.

Information Submitted by the Public

A final requirement of the small MS4 program for construction activity is the development of procedures for the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities. This provision is intended to further reinforce the public participation component of the regulated small MS4 storm water program and to recognize the crucial role that the public can play in identifying instances of noncompliance.

The small MS4 operator is required only to *consider* the information submitted, and may not need to follow-up and respond to every complaint or concern. Although some form of enforcement action or reply is not required, the small MS4 operator is required to demonstrate acknowledgment and consideration of the information submitted. A simple tracking process in which submitted public information, both written and verbal, is recorded and then given to the construction site inspector for possible follow-up would suffice.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year.....	Ordinance or other regulatory mechanism in place; procedures for information submitted by the public in place.
2 years.....	Procedures for site inspections implemented; a certain percentage rate of compliance achieved by construction operators.
3 years.....	Maximum compliance with ordinance; improved clarity and reduced sedimentation of local waterbodies.
4 years.....	Increased numbers of sensitive aquatic organisms in local waterbodies.

Am I Correct in Thinking that Construction Sites Are Already Covered Under the NPDES Storm Water Program?

Yes. EPA's Phase I NPDES storm water program requires operators of construction activities that disturb five or more acres to obtain a NPDES construction storm water permit. General permit requirements include the submission of a Notice of Intent and the development of a storm water pollution prevention plan (SWPPP). The SWPPP must include a site description and measures and controls to prevent or minimize pollutants in storm water discharges. The Phase II Final Rule similarly regulates discharges from smaller construction sites disturbing equal to or greater than one acre and less than five acres.

Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure for the small MS4 program is needed to induce more localized site regulation and enforcement efforts, and to enable operators of regulated small MS4s to more effectively control construction site discharges into their MS4s.

To aid operators of regulated construction sites in their efforts to comply with both local requirements and their NPDES permit, the Phase II Final Rule includes a provision that allows the NPDES permitting authority to reference a "qualifying State, Tribal or local program" in the NPDES general permit for construction. This means that if a construction site is located in an area covered by a qualifying local program, then the construction site operator's compliance with the local program would constitute compliance with their NPDES permit. A regulated small MS4's storm water program for construction could be a "qualifying program" if the MS4 operator requires a SWPPP, in addition to the requirements summarized in this fact sheet.

The ability to reference other programs in the NPDES permit is intended to reduce confusion between overlapping and similar requirements, while still providing for both local and national regulatory coverage of the construction site. The provision allowing NPDES permitting authorities to reference other programs has no impact on, or direct relation to, the small MS4 operator's responsibilities under the construction site runoff control minimum measure profiled in this fact sheet.

Is a Small MS4 Operator Required to Regulate Construction Sites that the Permitting Authority has Waived from the NPDES Construction Program?

No. If the NPDES permitting authority waives requirements for storm water discharges associated with small construction activity (see § 122.26(b)(15) of the Phase II rule), the small MS4 operator is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

4.6.2.5 Post-construction Storm Water Management in New Development/ Redevelopment

Why Is The Control of Post-Construction Runoff Necessary?

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving waterbodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the waterbody during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include streambank scouring and downstream flooding, which often lead to a loss of aquatic life and damage to property.

What Is Required?

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their MS4 from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The small MS4 operator is required to:

- ❑ Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs);

- ❑ Have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls to the extent allowable under State, Tribal or local law;

- ❑ Ensure adequate long-term operation and maintenance of controls;

- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

What Is Considered a "Redevelopment" Project?

The term "redevelopment" refers to alterations of a property that change the "footprint" of a site or building in such a way that the disturbance of equal to or greater than 1 acre of land results. The term does not include such activities as exterior remodeling. Because redevelopment projects may have site constraints not found on new development sites, the rule provides flexibility for implementing post-construction controls on redevelopment sites that consider these constraints.

What Are Some Guidelines for Developing and Implementing This Measure?

This section includes some sample non-structural and structural BMPs that could be used to satisfy the requirements of the post-construction runoff control minimum measure. It is important to recognize that many BMPs are climate-specific, and not all BMPs are appropriate in every geographic area. Because the requirements of this measure are closely tied to the requirements of the construction site runoff control minimum measure (see Fact Sheet 2.6), EPA recommends that small MS4 operators develop and implement these two measures in tandem. Sample BMPs follow.

❑ **Non-Structural BMPs**

- **Planning and Procedures**. Runoff problems can be addressed efficiently with sound planning procedures. Master Plans, Comprehensive Plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality.

- **Site-Based Local Controls**. These controls can include buffer strip and riparian zone preservation, minimization of disturbance and imperviousness, and maximization of open space.

❑ **Structural BMPs**

- **Storage Practices**. Storage or detention BMPs control storm water by gathering runoff in wet ponds, dry basins, or multichamber catch basins and slowly

releasing it to receiving waters or drainage systems. These practices both control storm water volume and settle out particulates for pollutant removal.

- **Infiltration Practices**. Infiltration BMPs are designed to facilitate the percolation of runoff through the soil to ground water, and, thereby, result in reduced storm water quantity and reduced mobilization of pollutants. Examples include infiltration basins/trenches, dry wells, and porous pavement.

- **Vegetative Practices**. Vegetative BMPs are landscaping features that, with optimal design and good soil conditions, enhance pollutant removal, maintain/improve natural site hydrology, promote healthier habitats, and increase aesthetic appeal. Examples include grassy swales, filter strips, artificial wetlands, and rain gardens.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect needs and characteristics of the operator and the area served by its small MS4. Furthermore, the measurable goals should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could include the following goals:

Target Date	Activity
1 year.....	Strategies developed that include structural and/or non-structural BMPs.
2 years.....	Strategies codified by use of ordinance or other regulatory mechanism.
3 years.....	Reduced percent of new impervious surfaces associated with new development projects.
4 years.....	Improved clarity and reduced sedimentation of local waterbodies.

4.6.2.6 Pollution Prevention/Good Housekeeping for Municipal Operations

Why Is Pollution Prevention/Good Housekeeping Necessary?

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator to examine and subsequently alter own actions to help ensure a reduction in the amount and type of pollution that (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

While this measure is meant primarily to accomplish the goal of improving or protecting the quality of receiving waters by altering the performance of municipal or facility operations, it also can result in a cost savings for the small MS4 operator, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

What Is Required?

Recognizing the benefits of pollution prevention practices, the rule requires an operator of a regulated small MS4 to:

- ❑ Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system;

- ❑ Include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. To minimize duplication of effort and conserve resources, the MS4 operator could use training materials that are available from EPA, their State or Tribe, or relevant organizations;

- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e., the program actions/activities), and measurable goals are suggested below.

What Are Some Guidelines for Developing and Implementing This Measure?

The intent of this control measure is to ensure that existing municipal, State or Federal operations are performed in ways that will minimize contamination of storm water discharges. EPA encourages the small MS4 operator to consider the following components when developing their program for this measure:

Maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural controls to reduce floatables and other pollutants discharged from the separate storm sewers;

Controls for reducing or eliminating the discharge of pollutants from areas such as roads and parking lots, maintenance and storage yards (including salt/sand storage and snow disposal areas), and waste transfer stations. These controls could include programs that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste;

Procedures for the proper disposal of waste removed from the separate

storm sewer systems and the areas listed in the bullet above, including dredge spoil, accumulated sediments, floatables, and other debris; and

Ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporation of additional water quality protection devices or practices. EPA encourages coordination with flood control managers for the purpose of identifying and addressing environmental impacts from such projects.

The effective performance of this control measure hinges on the proper maintenance of the BMPs used, particularly for the first two bullets above. For example, structural controls, such as grates on outfalls to capture floatables, typically need regular cleaning, while non-structural controls, such as training materials and recycling programs, need periodic updating.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are meant to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should consider the needs and characteristics of the operator and the area served by its small MS4. The measurable goals should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure. An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year.....	Pollution prevention plan (the new BMPs and revised procedures) completed; employee training materials gathered or developed; procedures in place for catch basin cleaning after each storm and regular street sweeping.
2 years.....	Training for appropriate employees completed; recycling program fully implemented.
3 years.....	Some pollution prevention BMPs incorporated into master plan; a certain percentage reduction in pesticide and sand/salt use; maintenance schedule for BMPs established.
4 years.....	A certain percentage reduction in floatables discharged; a certain compliance rate with maintenance schedules for BMPs; controls in place for all areas of concern.

4.6.3 Program Requirements: Evaluation/Assessment & Reporting

If coverage is obtained under a general permit or an individual permit under the Phase II regulations, the operator of a regulated small MS4 is required to comply with the evaluation/assessment and reporting requirements summarized in this section.

Frequency of Reports

Reports must be submitted annually during the first permit term – permit terms are typically a 5-year period. For subsequent permit terms, reports must be submitted in years 2 and 4 only, unless the NPDES permitting authority requests more frequent reports. Reports do not need to be submitted if the operator of the regulated small MS4 is relying on another entity to satisfy all permit obligations (see section 4.5.1.3)

Required Report Content

The reports must include the following:

- ❑ The status of compliance with permit conditions, including an assessment of the appropriateness of the selected BMPs and progress toward achieving the selected measurable goals for each minimum measure;
- ❑ Results of any information collected and analyzed, including monitoring data, if any;
- ❑ A summary of the storm water activities planned for the next reporting cycle;
- ❑ A change in any identified best management practices or measurable goals for any minimum measure; and
- ❑ Notice of relying on another governmental entity to satisfy some of the permit obligations (if applicable – see section 4.5.1.3).

A Change in Selected BMPs

If, upon evaluation of the program, improved controls are identified as necessary, permittees should revise their mix of BMPs to provide for a more effective program. Such a change, and an explanation of the change, must be noted in a report to the NPDES permitting authority.

Recordkeeping Requirements

Records required by the NPDES permitting authority must be kept for at least 3 years and made accessible to the public at reasonable times during regular business hours. Records need not be submitted to the NPDES permitting authority unless the permittee is requested to do so.

4.7 SMALL MS4 PROGRAM COMPLIANCE PROCESS: What Do I Need to Do To Comply?

Sections 4.1 through 4.6 of this guidance have provided a details on who's covered and what's required under the Phase II regulations for regulated small MS4s. Now that you are familiar with the Phase II program, this section walks you through the process, from beginning to end, that an operator of a regulated small should take to comply with the regulation. This step-by-step "walk-through" references the appropriate sections of the

guidance along the way as a means for understanding how the information in sections 4.1 through 4.6 fits together.

The last page of this section includes a permitting decision tree to help operators of MS4s determine if they need an NPDES storm water permit. By starting in the upper left hand corner, an operator can follow the decision tree to determine if they fall under Phase I or Phase II, and if they are eligible for a waiver.

Step 1: Determine if you are an operator of an MS4 (see section 4.1.1).

Step 2: As an operator of an MS4, determine if you are an operator of a small MS4 (see section 4.1.4).

Step 3: As an operator of a small MS4, determine if you are an operator of a regulated small MS4 (see section 4.2). You need to find out if you are:

A. Automatically designated by the rule

- First, determine if your system is located partially or fully within an urbanized area (See section 4.3),
- Second, determine if you may qualify for a waiver (waivers are at the discretion of the permitting authority). If you qualify for a waiver, stop here. (See section 4.4)

B. Potentially designated by the NPDES permitting authority

- Determine if your system, located outside of a UA, may fit the criteria for potential designation. Since designations are at the discretion of the permitting authority, a final determination is made by the permitting authority and not the small MS4 operator. If designated, continue with Step 4.

Step 4: Read Phase II Rule and guidance materials to get a sense of the permitting options (see section 4.5) and program requirements (see section 4.6).

Step 5: Determine which neighbors are regulated as Phase I MS4s (refer to list on the EPA web site) or Phase II MS4s (refer to Appendix 6 and maps of your UA). This information will be used to base your decision as to whether to:

- Be a co-permittee with another regulated MS4. (See section 4.5.1.2)
- Rely on another regulated MS4 for partial or full implementation of the minimum measures on your behalf. (See section 4.5.1.3)

Step 6: Determine if programs similar to one or more of the minimum measures is already being performed by another entity. This information will be used to decide whether you wish to rely on another entity for partial implementation of the minimum measures on your behalf. (See section 4.5.1.3)

Step 7: Determine which permit option to choose (depends on which are made available by the your NPDES permitting authority) (See section 4.5.1)

- General permit under the Phase II regulation
- Individual permit under the Phase I or Phase II regulation
- Modification of a Phase I individual permit (Co-permittee with a large or medium MS4)

In determine which option to choose, think about...

— If you wish to be a co-permittee and share responsibilities based on information from Step 5

— If, instead of the co-permittee option, you wish to have own permit but rely on another entity for implementing a measure or measures based on information from Steps 5 & 6.

Step 8: Begin planning and development of your storm water management program

- Use menu of BMPs as a guide (provided by EPA or the permitting authority). The EPA web site will also have references and links to helpful guidance on every facet of a storm water management program for MS4s.

- Meet with staff who will be responsible for implementing the storm water management program (may be a multi-departmental team). Task them with:
  — Assessing the storm water management characteristics and needs of the area served by the regulated small MS4.
  — Determining appropriate BMPs and measurable goals
  — Determining who will be responsible for what under the program

- Form a citizen advisory panel to help develop the program and give them similar tasks as those given to the staff.

- Meet with local Phase I and Phase II MS4 operators to discuss co-permittee status or sharing of resources, such as: hiring one enforcement inspector for multiple areas, co-sponsoring household hazardous waste collection events, or sharing a street sweeper, recycling truck, illicit discharge detection cameras, or any other equipment. (Note: Nothing listed here is required by the Phase II rule -- they are only examples)

- Meet with other entities that you may rely on to implement one or more of the minimum measures to discuss the arrangement and any legal agreements.

Step 9: **A. Under a General Permit:**

1) Once a general permit is issued, read it carefully. You may not be

required to implement every minimum measure due to the permitting authority recognizing or referencing other similar programs (see section 4.5.2.1). For this reason, before the permit is issued (which is expected to be no later than December 9, 2002) follow Step 8 but only do a preliminary storm water management program until the final permit requirements are know. Once the permit is issued, if you have chosen this option you will need to make final decisions on the following issues and complete the development of your storm water management plan:

- Do you want to be a co-permittee with another regulated small MS4?
- Do you want to rely on another entity for some or all of the permit requirements?
- Which BMPs and measurable goals will you use for each minimum measure you will be implementing?

2) Fill out an NOI in accordance with the Phase II regulation. (See section 4.6.2.1)

B. Under an Individual Permit (new or modified):

If you have chosen one of the individual permit options (i.e., under Phase II, under Phase I, or modified existing Phase I), you will need to continue efforts in Step 8, as applicable, and complete development of your permit application in accordance with the Phase II regulation. (See sections 4.6.2.2 through 4.6.2.4)

Step 10: Submit your NOI under a general permit or your individual permit application to the NPDES permitting authority by March 10, 2003; unless your NPDES permitting authority phases-in permit coverage and establishes alternative deadlines (see section 4.5.2.2).

Step 11: Implement your storm water management program in accordance with applicable standards (see section 4.6.1). The Phase II rule allows you up to five years to fully implement your program, although the exact timeframe is at the discretion of the your NPDES permitting authority.

Step 12: Write annual reports in your first permit term assessing the effectiveness of BMPs and if measurable goals were met, and submit the reports to your NPDES permitting authority. You may change the mix of BMPs originally selected if you find that such a change is necessary to ensure a more effective program. This step, as required in the Phase II regulations at § 122.34(g) and described in section 4.6.3, is not applicable if you sought coverage under an individual permit under the Phase I regulations or under a modification of an existing Phase I MS4 permit.

Step 13: Be aware that you may need to take over implementation of a minimum control measure if you are relying on another entity for its implementation and the other entity fails to perform it effectively. This is why EPA encourages a legally-binding agreement when choosing to rely on another entity. Also, the permitting authority may chose to change your mix of BMPs and measurable goals as submitted in you permit application if it determines that your program is not effectively controlling pollutant discharges.

4.8 FEDERAL AND STATE-OPERATED REGULATED SMALL MS4S: Unique Program Implementation Issues

In addition to local government jurisdictions, small MS4s include certain Federal and State-operated MS4s. Federal facilities were not designated for regulation by the NPDES Phase I storm water program for MS4s. The Phase II Final Rule, however, includes the "United States" in the definition of a small MS4, thereby including Federal MS4 operators in the NPDES Phase II storm water program. Federal and State-operated small MS4s can include universities, prisons, hospitals, roads (i.e., departments of transportation), military bases (e.g., State Army National Guard barracks), parks, and office buildings/complexes.

The small MS4 program, largely designed with municipally-operated small MS4s in mind, raises a number of implementation issues for Federal and State operators of regulated small MS4s who must obtain an NPDES permit that requires the development and implementation of a storm water management program that includes the six minimum control measures. This section highlights potential implementation issues related to the minimum control measures, and then discusses the implementation options included in the rule that may help resolve these issues.

4.8.1 What Are Some Implementation Concerns?

This section profiles the three most common implementation issues raised in the public comments submitted regarding Federal/State implementation of the small MS4 program.

How Does the Final Rule Account for Unique Characteristics?

Federal and State small MS4s possess a number of characteristics that set them apart from their municipal counterparts. For example, whereas municipally-operated MS4s largely serve resident populations, many Federal or State-operated MS4s, such as medical clinics and departments of transportation (DOTs), do not. Other types of Federal and State MS4s, such as military bases, prisons, and State universities, serve populations that are different from a typical municipal population. Their unique characteristics might lead Federal or State MS4 operators to question either the need to implement the entire suite of minimum control measures or their ability to comply fully with their Phase II storm water permit. The flexibility within the minimum measures allows Federal and State MS4s to develop a storm water program that comprises the

minimum measures in a way that makes sense for their circumstances.

What If the Operator Lacks Legal Authority?

Three of the minimum control measures (illicit discharge detection and elimination, and the two construction-related measures) require enforceable controls on third party activities to ensure successful implementation of the measure. Some Federal and State operators, however, may not have the necessary legal regulatory authority to adopt these enforceable controls in the same manner as do local governments.

For example, a State DOT that is responsible for the portions of its roads running through urbanized areas may not have the legal authority to impose restrictions on, and penalties against, illicit (i.e., non-storm water) discharges into its MS4 if the source of the discharge is outside the DOT's right-of-way or jurisdiction. As in the case of local governments that lack such authority, State and Federal MS4s are expected to utilize the authority they do possess and to seek cooperative arrangements.

How Can the Program Be Implemented in Areas Where There Are Multiple Regulated Entities?

Since the final rule provides automatic coverage of all small MS4s within an urbanized area, regardless of political boundaries, coverage of multiple governments and agencies in a single area is likely. For example, a city government that operates a small MS4 within an urbanized area must obtain permit coverage alongside the county, State, and Federal DOTs if they all operate a portion of the roads (i.e., MS4s) in the city. All four entities are responsible for developing a storm water management program for their MS4s (or portions thereof) within the urbanized area. EPA encourages State and Federal small MS4 operators to establish cooperative agreements with cities and counties in implementing their storm water programs.

4.8.2 Are There Implementation Strategies that Help Facilitate Program Implementation?

This section offers two hypothetical strategies for resolving the implementation issues raised above. The best solution may include a creative combination of strategies.

STRATEGY #1
A Focus on Choosing Appropriate BMPs

The final rule requires the permittee to choose *appropriate* best management practices (BMPs) for each minimum control measure. In other words, EPA expects Phase II permittees to tailor their storm water management plans and their BMPs to fit the particular characteristics and needs of the permittee and the area served by its MS4. Therefore, the Federal or State operator of a regulated storm sewer system can take advantage of the flexibility provided by the rule to utilize the most suitable minimum control measures for its MS4. Below is an example of tailored activities and BMPs that

Federal or State operators can implement for each measure:

- ❑ **Public Education and Outreach**. Distribute brochures and post fliers to educate employees of a Federal hospital about the problems associated with storm water runoff and the steps they can take to reduce pollutants in storm water discharges. For example, employees could be advised against carelessly discarding trash on the ground or allowing their cars to leak oil/fluids in the parking lot.

- ❑ **Public Participation/Involvement**. Provide notice of storm water management plan development and hold meetings at which employees of a Federal office complex are encouraged to voice their ideas and opinions about the effort. Request volunteers to help develop the plan.

- ❑ **Illicit Discharge Detection and Elimination**. Develop a map of the storm sewer system on a military base. Perform visual dry weather monitoring of any outfalls to determine whether the storm sewer system is receiving any non-storm water discharges from the base. If a dry weather flow is found, trace it back to the source and stop the discharge. Should a Federal military base identify an illicit discharge, the source of which is traced to the boundary of its system, the Federal operator should refer the discharge to the adjoining regulated MS4 for further action.

- ❑ **Construction Site Runoff Control**. Require the implementation of erosion and sediment controls, and control of waste, for any Federal or State DOT road construction. The DOT would review site plans for proper controls, perform inspections, and establish penalties in the construction contract if controls are not implemented. If construction is done directly by the regulated DOT instead of a private contractor, the DOT could be penalized by the NPDES permitting authority for non-compliance with its small MS4 permit in the event that controls are not properly implemented.

- ❑ **Post-Construction Runoff Control**. Require the implementation of post-construction storm water controls for any new construction on the grounds of a prison. This can be required as part of a construction contract, instituted as internal policy, and considered during site plan review.

- ❑ **Pollution Prevention/Good Housekeeping for Municipal Operations**. Train maintenance staff at a State university to employ pollution prevention techniques whenever possible. For example, routinely pick up trash/litter from the university grounds, use less salt on the parking lots and access roads in the winter, perform any maintenance of university vehicles under shelter only, limit pesticide use to the minimum needed, use vegetative buffer strips in the parking lots to filter runoff, and keep dumpster lids closed.

STRATEGY #2
Working with Other Entities

There may be instances when the Federal or State permittee has limited capabilities to satisfy one or more of the minimum control measures. As discussed above, the permittee may lack the proper legal authority to enforce controls (although it should try to obtain the necessary legal authority if at all possible).

In the case of limited capabilities, the permittee can work with neighboring operators of regulated small MS4s, preferably on a watershed basis, to form a shared storm water management program in which each permittee is responsible for activities that are within individual legal authorities and abilities. The final rule allows the permittee to rely on other entities, with their permission, to implement those minimum measures that the permittee is otherwise unable to implement. Three examples are:

- ❑ A State DOT with limited regulatory legal authority can reference a local sewer district's illicit detection and elimination program in its permit application, provided the program sufficiently addresses illicit discharges into the DOT's storm sewer system.

- ❑ The permittee or NPDES permitting authority can reference such programs as coastal nonpoint pollution control programs, State or local watershed programs, State or local construction programs, and environmental education efforts by public or private entities.

- ❑ The permittee can become a co-permittee with a neighboring Phase I MS4 through a modification of the Phase I MS4's individual permit. This may be the most logical and preferable option for those Federal and State entities located in close proximity to Phase I MS4s.

Choosing to work with other governmental entities as a co-permittee, or referencing parts of each other's plans, can help resolve issues that may arise where multiple regulated jurisdictions exist in the same area. Permittees can avoid duplicative efforts, as well as territorial or regulatory disputes, by working together to implement the storm water program.

Suggested Steps for Working with Other Entities

(1) Identify the boundaries of the urbanized area.

(2) Identify the operators of storm sewer systems or portions of the systems within the urbanized area such as local, State, Tribal or Federal governments or other entities.

(3) In seeking permit coverage:

Identify where another entity's program may satisfy one or more minimum control measure. If a program has requirements that are equivalent to a minimum control measure's required elements, the operator of the regulated small MS4 may reference the program in its permit application, provided the other entity gives it permission to do so. While such an arrangement relieves the operator from performing the minimum measure itself, the operator remains ultimately responsible for the measure's effective implementation.

OR

Team with an operator of a Phase I MS4 and become a co-permittee on its existing Phase I individual permit.

4.9 FUNDING OPTIONS

Possibly the biggest challenge for an operator of a regulated small MS4 in implementing a storm water management program is finding funding for the program. Funding is needed to maintain the staff, equipment and materials necessary to develop and implement an effective program. Adequate funding is critical to the success of the program but attaining it can be difficult as many other important programs compete for the same limited revenues from a general fund. Therefore, the operator of a regulated small MS4 will need to consider alternative funding options. This section provides brief introductions to some of the various funding options currently in use across the country. The following information on funding options was written by the American Public Works Association (AWPA) as part of their Storm Water Phase II workshops:

Debt Financing: Typically used for capital-intensive projects, local governments can issue debt to finance storm water management programs and facilities. Revenue bonds - or bonds that rely on ongoing source of revenue may be used. Alternatively, a general obligation bond can be issued which are backed by the full faith and credit of your municipality (based on your ability to generate revenues though taxes and other fees).

Grants and Loans: Federal, State, or Regional grant or loan funds may be available for some elements of the storm water program, depending on the BMP's selected and the location. Grants and loans are usually applicable to specific projects and not on-going activities, such as operation and maintenance.

Users /Utility Fees: Utility services charges are rates billed to customers for providing storm water management services. The service charges may be flat rates, or variable rates based on classes of

customers. Utility service charges may represent a dedicated source of funding and an ongoing method of funding some or all storm water management programs.

Special Assessment: Properties can be assessed annually to fund storm water management programs. Often, special assessments are used to fund a special district or authority that can implement all or portions of a region's storm water management program.

Local Improvement Under this type of funding system, individual properties benefitted by storm water projects are assessed to fund the project. Some states require special enabling legislation to establish this type of special benefits district.

General Fund: General fund monies are used for may storm water programs. If storm water programs are funded from your General Fund, the programs are at risk in each budget cycle. In addition, in order to increase funding levels for your program, other local government services may be affected or a general tax increase may be required.

Inspection Fees: Plan review and inspection fees allows the community to recover some or all of the direct cost associated with performing design reviews for pre and post construction BMP's.

Developer Fees: The developers construct needed facilities as a condition of development and bear associated costs.

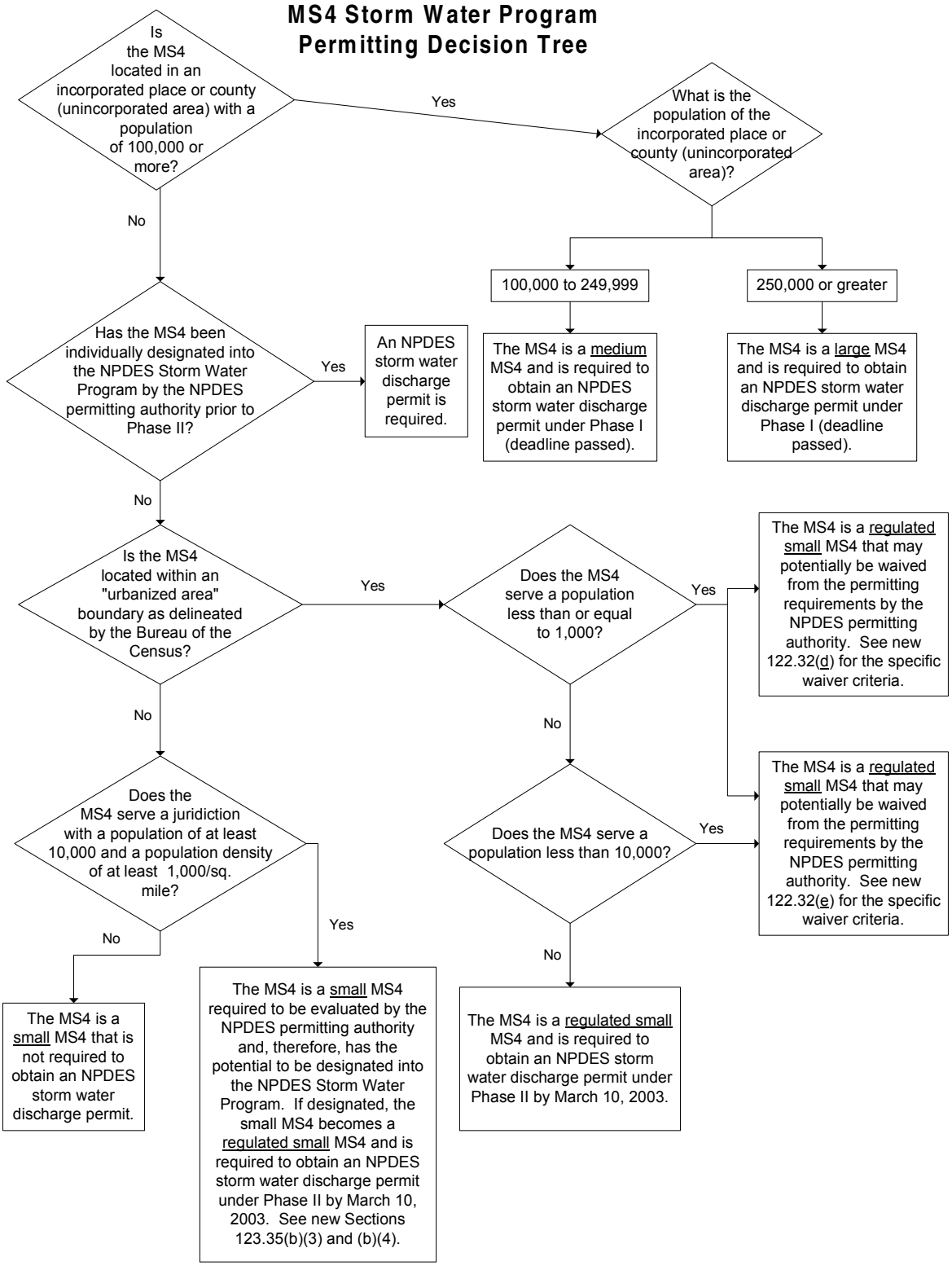
Alternative Fees: Instead of constructing on-site facilities to meet development requirements, developers may be given the option of paying a comparable fee to be used by the local government to build regional facilities that are designed to meet the same objectives as the developer-constructed on-site mitigation.

Connection Fees: A one time charge assessed at the time of development to recover a proportionate share of the cost of existing facilities and planned future facilities. The applicability depends upon legislation in each state.

Additional Resources

- Storm Water Utilities: Innovative Financing for Storm Water Management. 1992. U.S. EPA, Office of Policy, Planning, and Evaluation. Washington, D.C.
- State and Local Funding of Nonpoint Source Control Programs. 1992. U.S. EPA, Office of Water, Assessment and Watershed Protection Division. Washington, D.C.
- Storm Water Management Utility Implementation Manual. South Carolina Land Resources Commission, Columbia, S.C.

• Storm Water Maintenance and Financing Options (draft). 1987. State of Maryland, Maryland Department of Natural Resources.



1. See Appendices F, G, H, and I to Part 122 (as revised by the Phase II Final Rule) for the list of incorporated places and counties (unincorporated areas) with a population of 100,000 or greater. If the MS4 is located in a listed entity, then the answer to this question is "Yes" and the MS4 is covered under the Phase I MS4 program as a medium or large MS4.

5.0 SMALL CONSTRUCTION ACTIVITY

After reading Section 5.0, you should understand what type of construction activity is subject to the Phase II small construction activity regulations (including who may be waived from coverage), who is considered an operator of small construction activity, the permit options and requirements for small construction activity, and the interaction of the NPDES storm water program for construction with the NPDES storm water program for regulated MS4s. The discussion of these elements concludes with a step-by-step review of the process for compliance with the Phase II regulations for small construction activity.

5.1 COVERAGE: Who Is Subject to the Phase II Rule?

The NPDES Storm Water Program defines construction activities as "small" and "large" for the purposes of regulation. The Phase I storm water program covers large construction activity. The Phase II storm water regulation covers small construction activity. To understand who is covered under the Phase II Rule, it is necessary to understand who is already covered under the Phase I Rule. Toward this end, this section provides a definition of the type of construction activity covered by Phase I and Phase II, as well as other definitions essential to understanding the construction component of the NPDES Storm Water Program.

5.1.1 What Type of Construction Activity Is Covered Under the Phase I Regulations?

The Phase I Rule identifies eleven categories of industrial activity in the definition of "storm water discharge associated with industrial activity" that must obtain an NPDES storm water discharge permit (see section 6.1). Category (x) of this definition includes construction activity (including clearing, grading and excavation) that results in ***a total land disturbance of 5 acres or greater***. Disturbances of less than 5 acres are also regulated under category (x) if they are part of a "larger common plan of development or sale" with a planned land disturbance of 5 acres or greater. Phase I construction activity is commonly referred to as "large"

Construction activities can include road building, construction of residential houses, office buildings, industrial sites, or demolition.

Land Disturbance means exposed soil due to clearing, grading, or excavation activities.

Larger common plan of development or sale describes a situation in which multiple construction activities are occurring, or will occur, on a contiguous area.

An operator is the person or persons that has either operational control of construction project plans and specifications, or day-to-day operational control of activities necessary to ensure compliance with storm water permit conditions.

construction activity. The Phase I rule requires all operators of large construction activity to obtain an NPDES storm water discharge permit before discharging storm water runoff to a municipal separate storm sewer system or waters of the United States.

5.1.2 What Type of Construction Activity Is Covered Under the Phase II Regulations?

In 1992, the Ninth Circuit court remanded for further proceedings the portion of EPA's Phase I storm water regulation related to category (x) construction activity (NRDC v. EPA, 966 F.2d at 1292). EPA responded to the court's decision by designating under Phase II storm water discharges from construction site activities that ultimately will result in a ***land disturbance of equal to or greater than 1 and less than 5 acres*** as "storm water discharges associated with *small construction* activity" (see § 122.26(b)(15)). The Phase II rule requires all operators of small construction activity to obtain an NPDES storm water discharge permit before discharging storm water runoff to a municipal separate storm sewer system or waters of the United States.

Construction activities disturbing less than 1 acre are also included in Phase II of the NPDES storm water program if they are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre and less than 5 acres, or if they are designated by the NPDES permitting authority. The NPDES permitting authority or EPA Region may designate construction activities disturbing less than 1 acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

The definition of small construction activity does not apply where the construction operator can certify to one of two waivers – see section 5.2 for more information on waiver options.

5.1.3 What is meant by the terms "land disturbance," "larger common plan of development or sale," and "operator" of a construction site?

The definitions of "land disturbance," "larger common plan of development or sale," and "operator" of a construction site are key in understanding coverage under the NPDES Storm Water Program for construction activity. These definitions originate from the NPDES storm water general permit for large construction activity.

- **Land disturbance** refers to exposed soil resulting from activities such as clearing, grading and excavating.

- **Larger common plan of development or sale** is a contiguous area where multiple separate and distinct construction activities are occurring under one plan (e.g., the operator is building on three half-acre lots in a 6-acre development). The "plan" in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch,

advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot.

- **An operator** of a construction site is the person (or persons) responsible for obtaining coverage under an NPDES storm water permit for construction activity, and complying with the permit requirements. An operator is the person or persons that meet either of the following criteria:

  - ❑ Has operational control of construction project plans and specifications, including the ability to make modifications to those plans and specifications; or

  - ❑ Has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan (SWPPP) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

  There may be more than one party at a site responsible for "operational control." Depending on the project and the distinction between the parties' (e.g., owner's vs. developer's) responsibilities, there can either be a single party acting as a site operator needing permit coverage or there can be two (or more) operators who may share permit responsibilities. In cases where there are two or more operators , both parties will need permit coverage if they choose to keep the responsibilities as described in the above bullets separate, or they choose to separately maintain operational control for different portions of the site, etc. In such cases both operators should obtain permit coverage as co-permittees by co-submitting separate Notice of Intent forms, and should share in meeting permit conditions (e.g., generating the storm water pollution prevention plan, performing inspections, etc.). The option to have one sole operator who is willing to assume complete responsibility / liability for all permit requirements still exists and, in many cases, may be the less overall burdensome way to comply with storm water requirements.

  There are other instances where parties conduct earth disturbing activities at a site but do not need their own permit coverage. Examples for whom this may apply include a subcontractor who is under the supervision of the operator, or an entity that is neither a subcontractor nor has operational control (e.g., a utility line installer).

  Additional information on the responsibilities of operators can be found in Part III.E of EPA's NPDES Construction General Permit, published on February 17, 1998 (63 FR 7858). Part II of the fact sheet contained in the NPDES Construction General Permit also provides answers to common questions regarding roles and responsibilities of different parties involved on a construction site.

Important note: NPDES-authorized States may use a different definition of "operator" than the one provided above.

5.2 WAIVERS: Which Small Construction Activity Sites May Obtain a Waiver From Coverage?

Under the Phase II Rule, NPDES permitting authorities have the option of providing a waiver from Phase II coverage and requirements to operators of small construction activity who certify to one of two conditions:

❶ Low predicted rainfall potential (i.e., activity occurs during a negligible rainfall period), where the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation [RUSLE]) would be less than 5 during the period of construction activity.

❷ A determination that storm water controls are not necessary based on either:

(A) A "total maximum daily load" (TMDL) that address the pollutant(s) of concern for construction activities; **OR**

(B) For nonimpaired waters that don't require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutants of concern or determines that such allocations are not needed to protect water quality based on consideration of instream concentrations, expected growth in pollutant concentrations from all sources, and a margin of safety.

> **Pollutants of concern** include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity, or siltation) and any other pollutant that has been identified as a cause of impairment of a receiving waterbody.

The intent of these waiver provisions (see §§ 122.26(b)(15)(A) and(B)) is to waive only those sites that are highly unlikely to have a negative effect on water quality. Therefore, before applying for a waiver, operators of small construction activity are encouraged to consider the potential water quality impacts that may result from their project and to carefully examine such factors as proximity to water resources and sensitivity of receiving waters. Small construction activities disturbing less than 1 acre that are designated by the permitting authority are not eligible for these waivers.

5.2.1 Waiver 1: The Rainfall Erosivity Factor Waiver

The Rainfall Erosivity Factor waiver is based on the potential for a construction activity to occur in an area, or during a certain period of time, where there is low

predicted rainfall potential and, therefore, less likelihood of causing impacts. This waiver is time-sensitive and is dependent on when during the year a construction activity takes place, how long it lasts, and the expected rainfall and intensity during that time. It creates an incentive for construction site operators to build during the dry part of the year.

How would an operator qualify for, and certify to, this waiver?

To qualify for this waiver, the construction site operator must determine the value of the rainfall erosivity factor (R factor) in the Revised Universal Soil Loss Equation (RUSLE) and then certify to the permitting authority that the value of the factor is less than 5 during the period of construction. The RUSLE is a refinement of the Universal Soil Loss Equation (USLE), which is a method developed by the U.S. Department of Agriculture to measure soil loss from agricultural lands at various times of the year on a regional basis. The R factor varies based on location and time period during the year.

A construction site operator will need site-specific data to calculate the values for rainfall erosivity using the RUSLE. The rainfall erosivity factor is determined in accordance with Chapter 2 of *Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)*. This handbook is no longer in print but Chapter 2 can be obtained from EPA's web site or by contacting EPA's Water Resource Center.

5.2.1 Waiver 2: The Water Quality Waiver

The Water Quality waiver consists of: 1) a component for small construction sites that will discharge to an impaired waterbody where total maximum daily load (TMDL) assessments have been performed, and 2) a component for small construction sites that will discharge to non-impaired waters where an analysis equivalent to the TMDL assessments have been performed.

For impaired waters where technology-based controls required by NPDES permits are not achieving State water quality standards, the CWA requires implementation of the TMDL process.

> The **TMDL process** establishes the maximum amount of pollutants a waterbody can assimilate before water quality is impaired, then requires that this maximum level not be exceeded. A TMDL assessment determines the source or sources of a pollutant of concern, considers the maximum allowable level of that pollutant for the waterbody, then allocates to each source or category of sources a set level of the pollutant that it is allowed to discharge into the waterbody. Allocations to point sources are called wasteload allocations.

A TMDL is developed for each pollutant that is found to be contributing to the impairment of a waterbody or a segment of a waterbody. To allow a waiver for construction activities, a TMDL would need to address sediment, or a parameter that addresses sediment such as total suspended solids, turbidity, or siltation. Additional TMDLs addressing common pollutants from construction sites such as nitrogen, phosphorus, and oil and grease also may be necessary to ensure water quality protection and allow a waiver from the NPDES storm water program. More information on TMDLs can be found at http://www.epa.gov/owow/tmdl/.

Non-impaired waterbodies do not require TMDL assessments. However, construction site operators that discharge to non-impaired waterbodies are still eligible for this waiver. A construction site operator is eligible for a waiver if an analysis equivalent to a TMDL assessment is conducted for the pollutants of concern and it is determined through this analysis that small construction sites would not have to control their contribution of pollutants of concern to the waterbody to protect water quality. The analysis may also determine that allocations are not needed to protect water quality based on consideration of variables including existing in-stream concentrations; expected growth in pollutant contributions from all sources; and a margin of safety. In this situation, the construction site operator also qualifies for a waiver.

How would an operator qualify for, and certify to, this waiver?

EPA expects that when TMDLs, or equivalent analyses are completed, there may be a determination that certain classes of sources, such as small construction sites, would not have to control their contribution of pollutants of concern to the waterbody in order for the waterbody to be in attainment with water quality standards (i.e., these sources were not assigned wasteload allocations). In such a case, to qualify for the Water Quality waiver, the operator of the construction site would need to certify that its construction activity will take place, and the storm water discharges will occur, within the area covered either by the TMDLs or equivalent analysis. A certification form would likely be provided by the NPDES permitting authority.

5.3 PERMIT OPTIONS

The Storm Water Phase II Rule requires operators of small construction activities to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage because their storm water discharges are considered “point sources” of pollution. Point source pollutant discharges, unlike nonpoint sources such as agricultural runoff, are required under the Clean Water Act (CWA) to be covered by federally enforceable NPDES permits.

NPDES storm water permits are issued by an NPDES permitting authority, which may be an NPDES-authorized State or a U.S. EPA Region in non-authorized States (see *Appendix A* for a list of U.S. EPA Regions). Once a permit application is submitted by the operator of a small construction activity, the conditions of the permit must be

satisfied (i.e., implementation of a storm water pollution prevention plan). This section addresses the permit options under the Phase II regulations for operators of small construction activity, as well as for the permitting authority. The permit requirements are discussed in Section 5.4.

5.3.1 For Operators of Small Construction Activity: What Types of Permit Coverage Are Available?

Similar to the Phase I program for large construction activity, the Phase II approach allows operators of small construction activities to choose between two permitting options. Each NPDES permitting authority has the discretion, however, to determine which options are available to operators of small construction activities in their jurisdiction.

1) General Permits

General permits are strongly encouraged by EPA for small construction activity. EPA anticipates that the existing general permit for large construction activity will serve as a model for small construction activity general permits.

General permits prescribe one set of requirements for all applicable permittees. General permits are drafted by the NPDES permitting authority, then published for public comment before being finalized and issued.

A Notice of Intent (NOI) serves as the application for the general permit. Under the Phase II Rule, NPDES permitting authorities have the discretion to not require submittal of an NOI under a general permit for small construction activity.

Small construction operators must submit an NOI and obtain coverage under a general permit by March 10, 2003 or an earlier date set by the permitting authority (if this option is available).

2) Individual Permits

NPDES permitting authorities may deny coverage under general permits and require operators to submit an individual NPDES permit application based on information such as water quality data.

In the event that an NPDES permitting authority decides to issue an individual construction permit for small construction activity, operators are subject to the individual application requirements found at 40 CFR §122.26(c)(1)(ii).

For any discharges of storm water associated with small construction activity identified in §122.26(b)(15) that are not authorized by a general permit, an individual permit application must be submitted to the permitting authority by

March 10, 2003.

5.3.2 For the NPDES Permitting Authority

5.3.2.1 Alternative Option for Writing Permit Requirements: Referencing a Qualifying State, Tribal or Local Erosion and Sediment Control Program

Under §122.44(s) of the Phase II Rule, permitting authorities have the flexibility to develop permit conditions that incorporate by reference qualifying State, Tribal, or local erosion and sediment control programs into permits for large and small construction activity.

To be considered a qualifying State, Tribal, or local program, the program must require construction site operators to:

- Implement appropriate erosion and sediment control BMPs;
- Control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the site that may cause adverse impacts to water quality;
- Submit a site plan for review that incorporates consideration of potential water quality impacts; and
- Develop and implement a storm water pollution prevention plan (SWPPP) containing elements similar to those required by other NPDES construction storm water permits.

In addition to these elements, a qualifying program for large construction activities must also include any additional requirements necessary to achieve the applicable technology-based standards of “Best Available Technology” (BAT) and “Best Conventional Technology” (BCT) based on the best professional judgment of the permit writer.

> **Important Note:** Not all the construction programs administered by NPDES-permitted MS4s would qualify. A primary reason for this is because NPDES-permitted MS4s are not obligated under their permit to require construction operators to develop a SWPPP.

Should a State, Tribal, or local program include one or more, but not all, of the elements listed above, the NPDES permitting authority can reference the program in the permit, provided it also lists the missing element(s) as a condition in the permit.

5.3.2.2 Permit Application: Optional Use of NOIs

Under the Phase II Rule, EPA is providing NPDES permitting authorities with the

discretion to not require NOIs under a general permit for discharges from small construction activity, if desired. EPA does, however, recommend the use of NOIs for tracking permit coverage and prioritizing inspections and enforcement. This alternative option does not apply to general permits for large construction activity.

5.4 PERMIT REQUIREMENTS

The Phase II Rule requires operators of small construction sites, nationally, to obtain an NPDES permit and implement practices to minimize pollutant runoff. The Phase II Rule directs permitting authorities to develop and issue permits for small construction activity no later than December 9, 2002. Operators of small construction activity will be required to obtain permit coverage by March 10, 2003, or an earlier date set by the permitting authority. However, operators may have to comply with local, State, or Tribal construction runoff control programs (see section 4.6.2.4 for information on the Phase II small MS4's construction program).

For the Phase II small construction program, EPA has taken an approach similar to Phase I where the program requirements are not fully defined in the rule but rather in the NPDES permit by the NPDES permitting authority. EPA recommends that the NPDES permitting authorities use their existing Phase I NPDES construction general permits as a guide to developing their Phase II construction permits. In doing so, the Phase II requirements would be similar to the Phase I requirements described in subsection 5.4.2, although the applicable standards for small construction activity are different as outlined in subsection 5.4.1.

5.4.1 Applicable Water Quality Standards

Unlike the technology-based standards of BAT and BCT that are applicable to large construction activity, an operator of small construction activity is required to design its pollutant control plan so that it:

- ❑ Protects water quality (under CWA section 402(p)(6)); and
- ❑ Satisfies the appropriate water quality requirements of the CWA.

The water quality standards for large and small construction activity are different because they were designated into the NPDES storm water program under two separate sections of the CWA with differing standards. Practically, though, the standard for small construction activity would be substantively the same as the standard for large construction activity.

5.4.2 Potential Small Construction Activity Permit Requirements

EPA currently has only one type of permit available for construction activity operators, the NPDES Construction General Permit. This permit provides coverage to

large construction activities only. EPA expects any general permit for small construction activity to be very similar to the CGP. To gain familiarity with the CGP, the three main elements of the CGP are included below.

> **Important note:** This section on the CGP requirements is included for informational purposes only in order to provide a sense of what the permit requirements for small construction activity may be – these are not the requirements for small construction activity.

5.4.2.1 Notice of Intent

A complete and accurate NOI must be submitted to the NPDES permitting authority. An NOI includes general information and a certification that the activity will not impact endangered or threatened species. This certification is unique to EPA's NOI and is not a requirement of most NPDES-delegated State's NOIs.

An NOI must be postmarked at least two days prior to commencement of any work on site (if the operator has control over plans and specifications) or two days prior to commencement of the operator's portion of the work (if the operator has only day-to-day operational control).

5.4.2.2 Storm Water Pollution Prevention Plan (SWPPP)

The most important requirement of the CGP is the construction storm water pollution prevention plan (SWPPP) that includes the appropriate BMPs to minimize the discharge of pollutants from the site. The CGP requires at least one SWPPP for each construction project or site.

The construction site operator, or operators, must develop the SWPPP prior to submitting the NOI to obtain permit coverage. Unlike the NOI and other reporting forms, the operator(s) does not submit the SWPPP to the permitting authority. Instead, the SWPPP remains onsite and made accessible according to the requirements described in the CGP.

The SWPPP comprises several elements:

- **Site description.** This will contain a description of potential pollutant sources and other information.

- **Controls (BMPs).** This part of the SWPPP must clearly describe not only the controls, but also the timing and responsible permittee for implementing the controls in the following categories:

  - ✔ Erosion and Sediment Controls
  - ✔ Storm Water Management Controls

✓ Other Controls

- **Inspections.** Another critical element of the SWPPP is regular inspections of disturbed areas of the site that has not been stabilized; exposed materials storage areas; structural controls; and vehicle entrances and exits.

- **Maintenance.** The SWPPP also requires that operators perform maintenance on the controls (BMPs) to ensure they are in effective operating condition.

- **Signatures.** The SWPPP must be signed by at least one of the persons responsible for submitting an NOI for the project.

- **Accessibility.** The CGP requires the operator(s) to retain a copy of the SWPPP at the construction site or other local location accessible to the permitting authority.

More information on the construction SWPPP requirements can be found in the CGP, published on February 17, 1998 (63 *FR* 7858, p. 7906). EPA has also issued a construction general permit for Regions IV and VI. Contact your EPA Regional office or State environmental agency for information on construction permits in your State. In addition, EPA published a construction SWPPP guidance in a document entitled *Storm Water Management for Construction Activities: Developing Storm Water Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-005, September 1992).

5.4.2.3 Notice of Termination (NOT)

A completed Notice of Termination (NOT) must be submitted to the NPDES permitting authority within 30 days after one or more of the following conditions have been met:

- Final stabilization has been achieved on all portions of the site for which the permittee is responsible;

- Another operator/permittee has assumed control over all areas of the site that have not been finally stabilized; or

- For residential construction only: temporary stabilization of a lot has been completed prior to transference of ownership to the homeowner, with the homeowner being made aware of the need to perform final stabilization.

5.5 INTEGRATION OF NPDES PROGRAM FOR CONSTRUCTION WITH NPDES PROGRAM FOR MS4S

There is often confusion about the interaction between the NPDES Storm Water Program for construction activity, which has been the topic of discussion in this section, and the construction runoff control program implemented by NPDES-regulated MS4s, which was the topic of discussion in section 4.6.2.4.

- These are two separate and distinct construction programs.

- A construction operator is subject to requirements under BOTH programs if it is located in an NPDES-regulated MS4's jurisdiction.

The NPDES Storm Water Program for Construction is administered by the NPDES permitting authority, either the State or an EPA Regional Office.

- This program requires the construction site operator to seek coverage under an NPDES storm water discharge permit for construction. The current permit, the Construction General Permit, requires the operator to submit an NOI, develop a SWPPP, and comply with other applicable NPDES storm water discharge permit requirements.

- The Construction General Permit (CGP) currently only applies to large construction activity disturbing greater than 5 acres. Permits for small construction activity will be issued by each NPDES permitting authority by December 9, 2002.

The NPDES Storm Water Program for MS4s: MS4 Construction Runoff Control Programs are administered by the MS4 operator. The MS4 operator's NPDES storm water discharge permit requires it to establish requirements to control storm water discharges from construction activity and new development and redevelopment.

- Regulated small MS4s must control 1 acre and above.

- Medium and large MS4s have no particular size thresholds that they must control – differs among MS4s

- The specific requirements of the construction programs will vary among MS4s. An MS4 permit typically does not specify that the MS4 operator must require a SWPPP or that a permit application be submitted.

5.6 SMALL CONSTRUCTION ACTIVITY COMPLIANCE PROCESS: What Do I Need To Do To Comply?

Sections 5.1 through 5.5 of this guidance have provided details on who's covered, who may be waived, and what may be required under the Phase II regulations for small construction activity. Now that you are familiar with the Phase II program, this section

walks you through the process, from beginning to end, that an operator of a small construction activity should take to comply with the regulation. This step-by-step "walk-through" assumes the issuance of a general permit for small construction activity that is similar to the CGP. Remember, the general permit for small construction activity may have different requirements, timeframes, and deadlines than what is noted here. Repeat the steps for each individual construction site.

The last page of this section includes a permitting decision tree to help operators of construction activity determine if they need an NPDES storm water permit. By starting in the upper left hand corner, an operator can follow the decision tree to determine if they fall under Phase I, Phase II, or are eligible for a waiver.

Step 1: Determine if your construction site will discharge storm water runoff into a MS4 (see section 4.1.1 for definition) or to waters of the United States. If so, proceed to Step 2. If not, stop here.

> ***Waters of the United States*** include interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce. (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.) A complete definition can be found at 40 CFR 122.2.

Step 2: Determine if your construction site's storm water discharge will meet the definition of a "storm water discharge associated with small construction activity." If so, proceed to Step 3. If not, stop here. (See section 5.1.2)

Step 3: If your site meets the definition of small construction activity, determine if it qualifies for a waiver from the permit requirements. If so, stop here. If not, proceed to Step 4. (See section 5.2)

Step 4: Obtain and read the applicable storm water discharge permit for small construction activity (or the CGP until the small construction permit has been issued to get a sense of the upcoming permit requirements). The small construction permit should be issued by the NPDES permitting authority by December 9, 2002. (See section 5.4.2 for potential requirements)

Step 5: Determine which parties are considered *operators* and, therefore, are responsible for complying with the requirements described in the storm water permit for small construction activity (See section 5.1.3)

Step 6: Develop a SWPPP. (See section 5.4.2.2)

- SWPPPs must be developed prior to submitting the NOI.
- You do not need to submit the SWPPP to your NPDES permitting authority, however, it should be accessible to the public.

Step 7: Complete and submit an NOI. (See section 5.4.2.1)

- Your NPDES permitting authority may or may not require a NOI. If so, the Phase II regulation requires that you submit your NOI no later than March 10, 2003 (or 90 days after the NPDES permitting authority issues the permit, whichever comes first).
- Submit a completed NOI to your NPDES permitting authority two days prior to beginning work at the construction site.

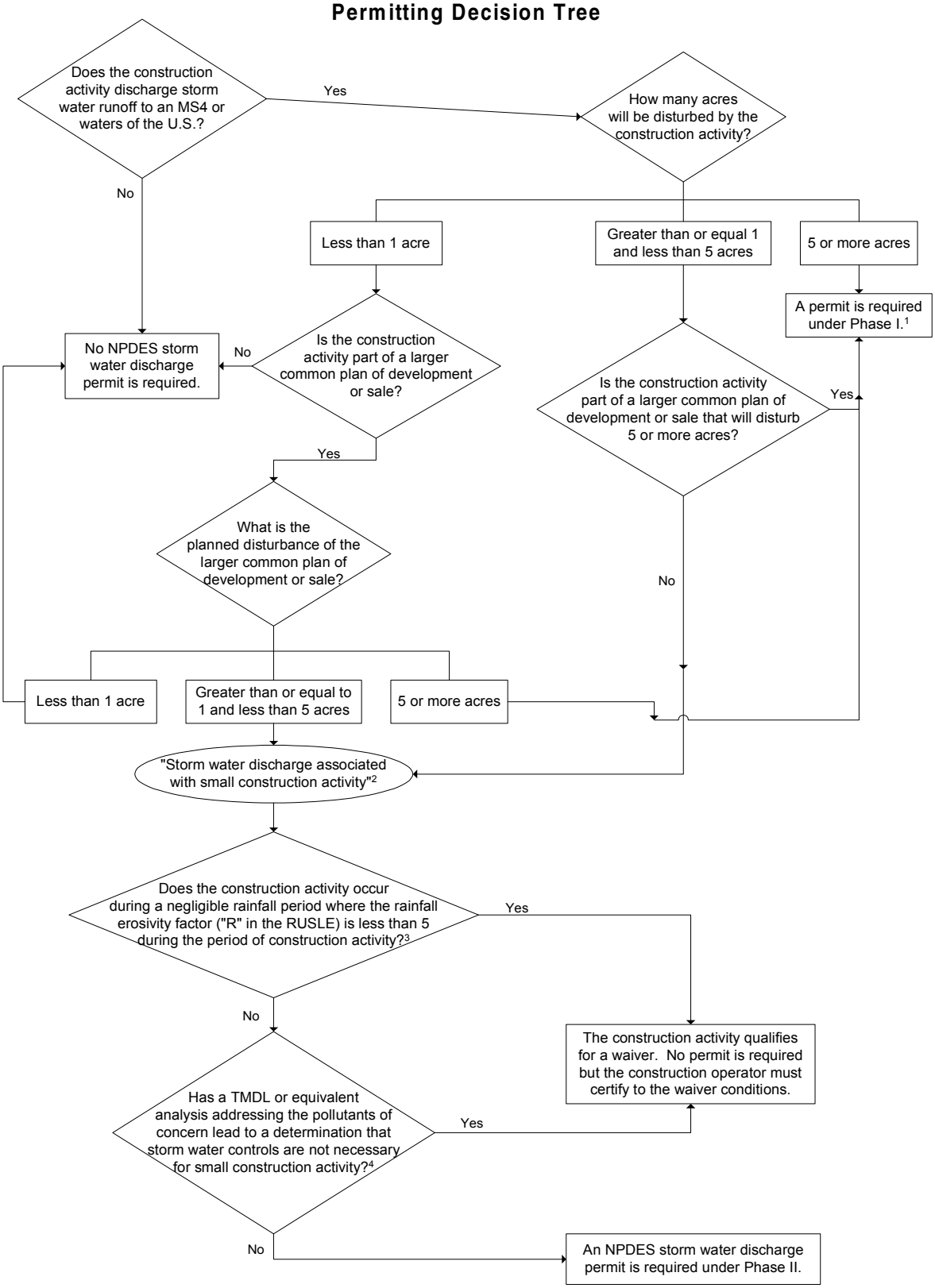
Step 8: Implement the SWPPP.

- Includes generation of inspection reports that are to be kept on-site.

Step 9: Complete and submit an NOT. (See section 5.4.2.3)

- Submit a completed NOT to your NPDES permitting authority within 30 days after one or more of the appropriate conditions have been met.

Construction Activities Storm Water Program
Permitting Decision Tree



1. Construction activity disturbing, or part of a planned disturbance of, five or more acres is a "storm water discharge associated with industrial activity" under category (x). See 40 CFR 122.26(b)(14)(x).
2. See new 122.26(b)(15) for the definition of "storm water discharge associated with small construction activity."
3. See new 122.26(b)(15)(i)(A) for more details.
4. See new 122.26(b)(15)(i)(B) for more details.

6.0 INDUSTRIAL ACTIVITY

After reading section 6.0, you should understand the basic components and requirements of the Phase II regulations as they affect the categories of industrial activity covered by the Phase I regulations. Phase II revises the original Phase I industrial no exposure exemption and also sets a new deadline for permit coverage for the municipally-owned industrial activity that had been temporarily exempted from storm water permit coverage.

6.1 PHASE I INDUSTRIAL ACTIVITY: What Industrial Activities are Covered by Phase I of EPA's Storm Water Program?

The 1990 storm water regulations for Phase I of the federal storm water program identify eleven categories of industrial activities under the definition of a "storm water discharge associated with industrial activity" that must obtain a National Pollutant Discharge Elimination System (NPDES) permit. The categories contain industries listed either by reference to an industry's Standard Industrial Classification (SIC) code, or by a short narrative description of the activity found at the industrial site (see text box at right for more detailed descriptions). For facilities that match the SIC codes or description in one of the categories, only those that have a storm water discharge to a *municipal separate storm sewer system (MS4)* or *waters of the United States* are required to seek permit coverage. The NPDES permit requirements vary between individual and general permits, but in general involve the development of a storm water pollution prevention plan based upon site assessments, monitoring and reporting data on storm water discharges, and mitigating any possible effects of discharges on endangered species and national historic properties (for EPA issued permits).

Storm Water Discharge Associated with Industrial Activity (40 CFR 122.26(b)(14)(i) - (xi))

- Facilities subject to storm water effluent limitation guidelines; new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N.
- "Heavy" industrial facilities with SIC codes listed in 40 CFR 122.26(b)(14)(ii), (iii), and (vi)
- "Light" industrial facilities with SIC codes listed in 40 CFR 122.26(b)(14)(xi), which conduct the activities specified in that sections.
- Hazardous waste treatment, storage, or disposal facilities.
- Landfills, land application sites, and open dumps that receive or have received industrial waste.
- Steam electric power generating facilities.
- Sewage treatment works.
- Construction activity (including clearing, grading, and excavation) disturbing five or more acres of land, or less than five acres of land if it is part of a larger common plan of development or sale of five acre or greater.

Under the Phase I regulations, operators of facilities within category eleven (xi), commonly referred to as "light industry," were exempted from the definition of "storm water discharge associated with industrial activity," and the subsequent requirement to obtain an NPDES permit, provided their industrial materials or activities were not "exposed" to storm water. This Phase I no exposure exemption from permitting was limited to those facilities identified in category (xi), and did not require category (xi) facility operators to submit any information supporting their no exposure claim.

In 1992, the Ninth Circuit court remanded to EPA for further rulemaking the no exposure exemption for light industry after making a determination that the limited exemption was arbitrary and capricious. The result was a revised no exposure exemption (now an "exclusion") as part of the Phase II regulation.

6.2 PHASE II NO EXPOSURE EXCLUSION: What is the Conditional No Exposure Exclusion for Industrial Activity as Revised by this Regulation?

The intent of the no exposure provision is to provide a simplified method for complying with the Clean Water Act to all industrial facilities that are entirely indoors. This includes facilities that are located within a large office building, or at which the only items permanently exposed to precipitation are roofs, parking lots, vegetated areas, and other non-industrial areas or activities.

As revised in the Phase II regulation, if a condition of No Exposure exists at a Phase I industrial facility, then permits will not be required for storm water discharges from these facilities. All industrial facilities that have no exposure of materials to storm water, including the "light industrial" facilities, must submit a certification to the permitting authority. The facility must certify that a condition of No Exposure exists at its facility and either maintain a condition of no exposure or obtain a permit. The following subsections discuss who is eligible for the revised no exposure exclusion, the definition of no exposure, and the requirement to submit a written certification of no exposure in place of a permit application.

6.2.1 Who is Eligible to Qualify for the No Exposure Exclusion?

The Phase II Conditional No Exposure Exclusion represents a significant expansion in the scope of the original no exposure provision in terms of eligibility. Now, all Phase I industrial categories with a condition of no exposure, except for construction activity, are eligible for the no exposure exclusion. The exclusion from permitting is available on a facility-wide basis only, not for individual outfalls

6.2.2 What is the Definition of No Exposure?

The Phase II regulatory definition of no exposure is as follows:

> ***No exposure*** means all industrial materials and activities are protected

by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

A storm resistant shelter is not required for the following industrial materials and activities:

- Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves;
- Adequately maintained vehicles used in materials handling;
- Final products, other than products that would be mobilized in storm water discharges (e.g., rock salt).

The term "storm-resistant shelter," as used in the no exposure definition, includes completely roofed and walled buildings or structures, as well as structures with only a top cover but no side coverings, provided material under the structure is not otherwise subject to any run-on and subsequent runoff of storm water.

While the intent of the no exposure provision is to promote a condition of permanent no exposure, certain machinery, such as trucks, may become temporarily exposed to rain and snow while passing between buildings. Adequately maintained mobile equipment (e.g., trucks, automobiles, forklifts, trailers, or other such general purpose vehicles found at the industrial site that are not industrial machinery, and that are not leaking contaminants or are not otherwise a source of industrial pollutants) also can be exposed to precipitation or runoff. Such activities alone would not prevent a facility from certifying to no exposure. Similarly, trucks or other vehicles awaiting maintenance at vehicle maintenance facilities that are not leaking contaminants or are not otherwise a source of industrial pollutants, would not be considered exposed.

EPA recognizes that there are circumstances where permanent no exposure of industrial activities or materials is not possible and, therefore, under such conditions, materials and activities could be sheltered with temporary covers (e.g., tarps) between periods of permanent enclosure. The No Exposure provision does not specify every such situation, but NPDES permitting authorities can address this issue on a case-by-case basis.

The Phase II regulation also addresses particulate matter emissions from roof stacks/vents. If regulated by, and in compliance with, other environmental protection programs (i.e., air quality control programs) and not causing storm water contamination, they are considered not exposed. Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control program) and evident in storm water outflow are considered "exposed." Likewise,

visible “track out” (i.e., pollutants carried on the tires of vehicles) or windblown raw materials are considered “exposed.” Leaking pipes containing contaminants exposed to storm water are deemed “exposed,” as are past sources of storm water contamination that remain onsite. General refuse and trash, not of an industrial nature, is not considered exposed as long as the container is completely covered and nothing can drain out holes in the bottom, or is lost in loading onto a garbage truck. Industrial refuse and trash that is left uncovered, however, is considered “exposed.”

6.2.3 What Do I Need To Know About Certifying to a Condition of No Exposure?

In order to obtain the Conditional No Exposure exclusion, you will have to submit written certification that your facility meets the definition of “no exposure,” even if you are a category (xi) facility operator. The Phase II Rule included as an appendix to the preamble a four-page No Exposure Certification form to be used for this purpose in areas where EPA is the NPDES permitting authority. EPA's certification form uses a series of yes/no questions which you must answer regarding the your industrial activity. You may certify to no exposure if you can answer "no" to all of the questions.

> **Important note:** EPA's No Exposure Certification form applies only in areas where EPA is the NPDES permitting authority. Where a State is the NPDES permitting authority, the State will issue its own form. Since most aspects of EPA's form are also regulatory requirements as to what must be included within a written certification of no exposure, you may expect the State forms to be very similar to EPA's.

The Certification form serves two purposes: 1) as an aid to help you in determining whether you have a condition of No Exposure at your facility or site, and 2) as the necessary written certification of No Exposure, provided you are able to answer all the questions in the negative.

- ❑ If, after you have completed the form, you find that you answered "yes" to one or more of the questions about possible exposure, you must make the appropriate changes at the facility if you still wish to apply for the conditional exclusion. These changes must remove the particular material, process, or activity at the facility or site from exposure to storm water.

- ❑ If, after completing the form, you find that you were able to check "no" to every question, you qualify for the no exposure exclusion and must sign and submit the form to your NPDES permitting authority.

Certification Facts:

- The certification must be completed and submitted to your permitting authority once every 5 years, and can only be done so if the condition of no exposure continues to exist at the facility.
- The Certification must be provided for each facility qualifying for the no exposure

exclusion.

- The form is non-transferable. If a new operator takes over your facility, they must complete, sign, and submit a new form to claim the no exposure exclusion when they assume control over the operations of the facility.

6.2.4 Are There Any Concerns Related to Water Quality Standards?

Yes. An operator certifying that its facility qualifies for the conditional no exposure exclusion may, nonetheless, be required by the permitting authority to obtain permit authorization. Such a requirement would follow the permitting authority's determination that the facility's discharge is likely to have an adverse impact on water quality.

Many efforts to achieve no exposure can employ simple good housekeeping and contaminant cleanup activities such as moving materials and activities indoors into existing buildings or structures. In limited cases, however, industrial operators may make major changes at a site to achieve no exposure. These efforts may include constructing a new building or cover to eliminate exposure or constructing structures to prevent run-on and storm water contact with industrial materials and activities. Major changes undertaken to achieve no exposure, however, can increase the impervious area of the site, such as when a building is placed in a formerly vegetated area. Increased impervious area can lead to an increase in the volume and velocity of storm water runoff, which, in turn, can result in a higher concentration of pollutants in the discharge, since fewer pollutants are naturally filtered out.

The concern of increased impervious area is addressed in one of the last questions on the Certification form, which asks, "Have you paved or roofed over a formerly exposed, pervious area in order to qualify for the no exposure exclusion? If yes, please indicate approximately how much area was paved or roofed over." This question is intended to aid the NPDES permitting authority in assessing the likelihood of such actions interfering with water quality standards. Where this is a concern, the facility operator and its NPDES permitting authority should take appropriate actions to ensure that water quality standards can be achieved.

6.2.5 Industrial Program Compliance Process: What Do I Need To Do To Obtain the No Exposure Exclusion and Comply with Applicable Requirements?

Sections 6.1 through 6.2.4. of this guidance have provided information necessary to understand the conditional no exposure exclusion. Now that you are familiar with the no exposure exclusion, this section walks you through the process, from beginning to end, that an operator of industrial activity will need to take to comply with the Phase II regulation. This step-by-step "walk-through" assumes the issuance of a no exposure certification form that is similar to EPA's form. Remember, a State's certification form may have different requirements and deadlines than what is noted here. Repeat the steps for each individual facility or site.

Step 1: Determine if your industrial activity meets the definition of a "discharge associated with industrial activity." If so, proceed to Step 2. If not, stop here. (See section 6.1)

- If you are a regulated industrial operator, you need to **either** apply for a storm water permit, **or** submit a no exposure certification, in order to be in compliance with the NPDES storm water regulations. Any storm water permit you may currently hold becomes null and void once a completed conditional no exposure certification form is submitted

Step 2: Obtain the no exposure certification form from your NPDES permitting authority. Determine if your regulated industrial activity meets the definition of " no exposure" and qualifies for the exclusion from permitting. If it does, proceed to Step 3. If not, stop here and obtain industrial storm water permit coverage (probably through the multi-sector general permit or similar permit).

- The conditional no exposure exclusion option is currently available only for facilities in areas where EPA is the NPDES permitting authority. In all other areas, where the State is the NPDES permitting authority, the facility operators will need to wait until the State makes the option available.

Step 3: Submit the certification form to your NPDES permitting authority -- a new form must be submitted once every 5 years.

- Be aware that even when you certify to no exposure, your NPDES permitting authority still retains the authority to require you to apply for an individual or general permit if it has determined that your discharge is contributing to the violation of, or interfering with the attainment or maintenance of, water quality standards, including designated uses.

Step 4: Submit a copy, upon request, of the certification form to the municipality in which the facility is located.

Step 5: Allow your NPDES permitting authority or, if discharging into a municipal separate storm sewer system, the operator of the system, to (1) inspect the facility and (2) make such inspection reports publicly available upon request.

Step 6: Maintain a condition of no exposure.

- The no exposure exclusion is conditional and not an outright exemption. Therefore, if there is a change in circumstances that causes exposure of industrial activities or materials to storm water, the you are required to comply immediately with all the requirements of the NPDES Storm Water Program, including applying for and obtaining a storm water discharge permit.

- Failure to maintain the condition of no exposure or obtain coverage under an NPDES permit can lead to the unauthorized discharge of pollutants to waters of the United States, resulting in penalties under the CWA.

6.3 ISTEA MORATORIUM: How Has this Regulation Affected the Municipally-Operated Industrial Activity Subject to the Intermodal Surface Transportation Enforcement Act (ISTEA) Moratorium?

Provisions within ISTEA temporarily delayed the deadline for Phase I industrial activities operated by municipalities with populations of less than 100,000 people to obtain an NPDES storm water discharge permit. Congress delayed the permitting deadline to allow small municipalities additional time to comply with NPDES requirements. This moratorium on permitting did not apply to power plants, airports, and uncontrolled sanitary landfills operated by small municipalities.

The Phase II Rule slightly extended this temporary exemption from permitting and set a deadline of no later than March 10, 2003 for all ISTEA-exempted municipally-operated industrial activities to obtain NPDES permit coverage. Of course, like any other regulated industrial activity, these municipally-operated industrial activities are eligible to qualify for the no exposure exclusion from permitting if a condition of no exposure exists. Municipal-operators must follow the same procedures outlined in Section 6.2.4 in order to obtain an exclusion from permitting.

Many of the small municipalities that will now have to obtain permit coverage for their industrial activity will also have to obtain permit coverage for their small MS4 (see section 4.0) and small construction activity (see section 5.0). The Phase II regulation deadlines for industrial, small MS4, and small construction permit coverage are all the same – no later than March 10, 2003 – to allow the NPDES permitting authority to issue one individual permit that covers all three components if it chooses to do so.

7.0 THE COMPLIANCE ASSURANCE PROCESS

After reading section 7, you should understand how EPA will determine compliance, what happens if you or the EPA discovers noncompliance, and where to go for compliance assistance information.

7.1 How Will EPA Determine Compliance?

EPA employs several approaches to monitor compliance with its environmental regulations, including both EPA-initiated and facility-initiated methods.

1. **Inspections** – EPA may conduct periodic inspections at facilities subject to this regulation. Inspections may be initiated by disclosures to EPA, randomly selecting facilities, or a variety of targeting methods. Inspections may be used, for instance, to monitor recordkeeping requirements, visit sites where storm water controls should be in place, and/or verify that facilities have permits.

2. **Permits, Records, and Reports** – Permits are not required for small construction sites and regulated small MS4s for up to three years and 90 days from the effective date of the final rule. After general permits are issued, the NPDES permitting authorities intend to use the data in storm water permit applications, construction waiver certifications, storm water pollution prevention plans (SWPPPs), no exposure certifications, records, and reports (as required by the Phase II regulation) to set appropriate permit conditions and track discharges covered by a storm water permit. Compliance and enforcement authorities will use the information to assess the regulated entity's level of compliance.

3. **Review of No Exposure Certifications** – Operators of industrial facilities that are eligible for a no exposure exclusion from the NPDES permitting requirements may prepare, and submit for review, a no exposure certification. NPDES authorities will use the information contained in the certification in determining compliance with the no exposure provisions. This information will particularly assist in determining compliance with the no exposure certification in conjunction with complaints from the public.

4. **Self-audit and Self Disclosure** – Facilities have the primary responsibility for ensuring that they are in continuous compliance. EPA encourages the facility to take advantage of EPA's Audit Policy, Small Business Policy, or Small Community Policy (these will be discussed in more detail in section 7.2).

   In addition to this document, to aid in determining whether it is in compliance, the facility might use a document currently being developed by EPA entitled "Protocol for Conducting Environmental Compliance Audits under the Storm

Water Program." This protocol, which is a part of a set containing other statute-specific audit protocols, is a tool to assist and encourage businesses and organizations to perform environmental audits and disclose violations in accordance with EPA's Audit Policy. The protocol provides guidance on key requirements, defines regulatory terms, gives an overview of the federal laws affecting a particular environmental management area, and includes a checklist for review of the facility. EPA anticipates making the document available for public use in summer 2000. To see a sample of protocols that have been completed under other statutes (RCRA, EPCRA, CERCLA), visit the Internet site: http://es.epa.gov/oeca/ccsmd/profile.html.

7.2 If I Discover a Violation, How Can I Work With The Agency to Correct It?

EPA promotes environmental compliance by providing incentives. By participating in compliance assistance programs or voluntarily disclosing violations and promptly correcting violations, businesses may get penalty waivers or reductions. EPA has three policies that potentially apply to entities regulated by the Storm Water Phase II Rule. These policies do not apply if an enforcement action has already been initiated.

Audit Policy. The first of these policies is *"Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations"* (60 FR 66706), known as the "Audit Policy". EPA initiated this policy to provide entities of all sizes with incentives to voluntarily discover and promptly disclose and correct violations of environmental regulations. For a more detailed description of the Audit Policy, visit the Internet site at: www.epa.gov/oeca/polguid/polyguid1.html.

Small Business Policy. EPA's *"Policy on Compliance Incentives for Small Business"* was developed to help small businesses with 100 or fewer employees achieve environmental compliance by creating benefits for businesses that make a good faith effort to comply with environmental regulations before a government agency discovers a violation or otherwise takes an enforcement action. The Policy currently provides incentives, such as penalty waivers or penalty reduction, for businesses that participate in on-site compliance assistance programs or conduct environmental audits to discover, disclose, and correct violations. The Policy is presently being modified to broaden when and how a small business can take advantage of the Policy. Revisions are expected in spring of 2000. Please see www.epa.gov/oeca/polguid or contact Ginger Gotliffe (202-564-7072) for more information.

Small Community Policy. The "*Policy on Flexible State Enforcement Responses to Small Community Violations"* (November, 1995) promotes alternative strategies for communities to achieve environmental and economic goals. States are encouraged to use multimedia compliance assistance and prioritize compliance issues to address specific needs of their small communities. As long as states work within the parameters of the Policy, EPA will generally defer to their decision to waive part or all of the penalty for a small community's environmental violations. This approach allows small

communities to apply their limited resources to fixing their environmental problems, rather than to paying penalties. The policy applies to communities generally comprised of fewer than 2,500 residents. In the context of the Storm Water Phase II Rule, small MS4s that are not eligible for waivers from their regulatory requirements would be most likely to take advantage of this policy. For a more detailed description of the Small Communities Policy, visit the Internet sites: www.epa.gov/oeca/scpolcy.html or www.epa.gov/oeca/ccsmd/mun.html.

7.3 Where Can I Go for Compliance Assistance on the Storm Water Phase II Rule?

The permitting authority is the leading source for information on the Storm Water Phase II Rule. EPA is also developing a "tool box" to assist States, Tribes, municipalities, and other parties involved in the Phase II program. This tool box will facilitate implementation of the storm water program in an effective and cost-efficient manner. The tool box is available on EPA's web page at http://www.epa.gov'owm/sw/phase2 and consists of the following eight major components:

- Fact Sheets
- Guidance Documents
- Menu of BMPs
- Training and Outreach Efforts
- Information Clearinghouse
- Technical Research
- Support for Demonstration Projects
- Compliance Monitoring/Assistance Tools

In addition, EPA provides widely available compliance assistance through the establishment of national compliance assistance centers, in partnership with industry, academic institutions, and other federal and state agencies. Centers have been established that provide services for several industries that contain many small businesses. Compliance assistance centers offer a range of communications services, including Web sites, e-mail groups, fax-back systems, and telephone assistance lines. Each Center is targeted to a specific sector and explains relevant federal environmental regulations. For instance, local governments can use the services of the Local Government Environmental Assistance Network (LGEAN). LGEAN is a "first-stop shop" providing environmental management, planning, and regulatory information for local government elected and appointed officials, managers, and staff. It provides 24-hour access to regulatory and pollution prevention information, message boards, regulatory updates, grants and information, and more. It is a good source for compliance assistance information on the Storm Water Phase II Rule.

For more information on EPA's compliance assistance centers, please contact Tracy Back (202-564-7076). You can access all the centers through www.epa.gov/oeca/mcfac.html or individually at:

EPA's Compliance Assistance Centers

Center	Phone	Web Address
Local Government Environmental Assistance Network (LGEAN)	1-877-TO-LGEAN	www.lgean.org
National Metal Finishing Resource Center	1-800-AT-NMFRC	www.nmfrc.org
Printers' National Environmental Assistance Center	1-888-USPNEAC	www.pneac.org
CCAR-Greenlink (the Automotive Compliance Information Assistance Center)	1-888-GRN-LINK	www.ccar-greenlink.org
National Agriculture Compliance Assistance Center	1-888-663-2155	www.epa.gov/oeca/ag
Printed Wiring Board Resource Center	1-734-995-4911	www.pwbrc.org
ChemAlliance	1-800-672-6048	www.chemalliance.org
Transportation Environmental Resource Center	1-888-459-0656	www.transource.org
Paints and Coatings Resource Center	1-800-286-6372	www.paintcenter.org

7.4 If the Agency Discovers a Violation, What Might Be Its Response?

To maximize compliance, EPA implements a balanced program of compliance assistance, compliance incentives, and traditional law enforcement. EPA knows that small businesses which must comply with complicated new statutes or rules often want to do the right thing, but may lack the requisite knowledge, resources, or skills. Compliance assistance information and technical advice helps small businesses to understand and meet their environmental obligations. Compliance incentives, such as our Small Business Policy, encourage persons to voluntarily discover, disclose, and correct violations before they are identified by the government. EPA's strong law enforcement program protects all of us by targeting persons who neither comply nor cooperate to address their problems.

EPA uses a variety of methods to determine whether regulated entities are complying, including inspecting facilities, reviewing records and reports, and responding to citizen complaints. If we learn an entity is violating the law, EPA (or a State, if the program is delegated) may file an enforcement action seeking penalties of up to $27,500, per violation, per day. While the statutory maximum penalty is currently $27,500, it may be increased periodically based on inflation in accordance with the Debt Collection Improvement Act of 1996. The proposed penalty in a given case will depend on many factors, including the number, length, and severity of the violations, the economic benefit obtained by the violator, and its ability to pay. EPA has polices in place to ensure penalties are calculated fairly. These policies are available to the public. In addition, any company charged with a violation has the right to contest EPA's allegations and proposed penalty before an impartial judge or jury.

EPA recognizes that we can achieve the greatest possible protection by encouraging businesses and organizations to work with us to discover, disclose, and correct violations. That is why we have issued Audit, Small Business, and Small Community policies to eliminate or reduce penalties for small and large entities which cooperate with EPA to address compliance problems. To help the regulated community in understanding their requirements for compliance with the rule, EPA provides compliance assistance through its regional offices, Office of Enforcement and Compliance Assurance at Headquarters, and national compliance assistance centers partners.

ABBREVIATIONS:

BAT	Best Available Technology Economically Achievable (applies to non-conventional and toxic pollutants)
BCT	Best Conventional Pollutant Control Technology (applies to conventional pollutants)
BMP	Best Management Practice
BPJ	Best Professional Judgment
BPT	Best Practicable Control Technology Currently Available (generally applies to conventional pollutants and some metals)
CFR	Code of Federal Regulations
CGP	Construction General Permit
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CWA	Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972)
CZARA	Coastal Zone Act Reauthorization Amendments
D.O.	Dissolved Oxygen
DMR	Discharge Monitoring Report
ELG	Effluent Limitations Guidelines
EPA	Environmental Protection Agency
FR	Federal Register
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NOI	Notice of Intent
NOT	Notice of Termination
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	Non-point Source
O&M	Operation and Maintenance
OW	Office of Water
OWM	Office of Wastewater Management
PA	Permitting Authority
POTW	Publicly Owned Treatment Works
SIC	Standard Industrial Classification
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UA	Urbanized Area

DEFINITIONS:

Best Available Treatment(BAT)/Best Control Technology (BCT): A level of technology based on the very best (state of the art) control and treatment measures that have been developed or are capable of being developed and that are economically achievable within the appropriate industrial category.

Best Management Practices (BMPs): Activities or structural improvements that help reduce the quantity and improve the quality of storm water runoff. BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Category (xi) facilities: Specific facilities classified as light industry with equipment or materials exposed to storm water.

Clean Water Act (Water Quality Act): (formerly the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972). Public law 92-500; 33 U.S.C. 1251 et seq.; legislation which provides statutory authority for the NPDES program. Also know as the Federal Water Pollution Control Act.

Conveyance: The process of water moving from one place to another.

Discharge: The volume of water (and suspended sediment if surface water) that passes a given location within a given period of time.

Erosion: When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road-building, and timber harvesting.

Excavation: The process of removing earth, stone, or other materials from land.

General Permit: A permit issued under the NPDES program to cover a certain class or category of storm water discharges. These permits reduce the administrative burden of permitting storm water discharges.

Grading: The cutting and/or filling of the land surface to a desired slope or elevation.

Illicit Connection: Any discharge to a municipal separate storm sewer that is not composed entirely of storm water and is not authorized by an NPDES permit, with some exceptions (e.g., discharges due to fire fighting activities).

Industrial Activity: Any activity which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant.

Large Municipal Separate Storm Sewer System (MS4): An MS4 located in an incorporated place or county with a population of 250,000 or more, as determined by

the latest U.S. Census

Light Manufacturing Facilities: Described under Category (xi) of the definition of "storm water discharges associated with industrial activity." [40 CFR 122.26(b)(14)(xi)] Under the Phase I NPDES Storm Water Program, these facilities were eligible for exemption from storm water permitting requirements if certain areas and activities were not exposed to storm water. As a result of the Phase II Final Rule, these facilities must now certify to a condition of no exposure.

Maximum Extent Practicable (MEP): A standard for water quality that applies to all MS4 operators regulated under the NPDES Storm Water Program. Since no precise definition of MEP exists, it allows for maximum flexibility on the part of MS4 operators as they develop and implement their programs.

Medium Municipal Separate Storm Sewer System (MS4): MS4 located in an incorporated place or county with a population of 100,000 or more but less than 250,000, as determined by the latest U.S. Census.

Municipal Separate Storm Sewer System (MS4): A publically-owned conveyance or system of conveyances that discharges to waters of the U.S. and is designed or used for collecting or conveying storm water, is not a combined sewer, and is not part of a publicly-owned treatment works (POTW).

Multi-Sector General Permit (MSGP): An NPDES permit that regulates storm water discharges from eleven categories of industrial activities.

No exposure: All industrial materials or activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product.

Non-authorized States: any State that does not have the authority to regulate the NPDES Storm Water Program.

Non-point Source (NPS) Pollutants: Pollutants from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water.

Notice of Intent (NOI): An application to notify the permitting authority of a facility's intention to be covered by a general permit; exempts a facility from having to submit an individual or group application.

NPDES: "National Pollutant Discharge Elimination System" the name of the surface water quality program authorized by Congress as part of the 1987 Clean Water Act. This is EPA's program to control the discharge of pollutants to waters of the United States (see 40 CFR 122.2).

O&M Expenditures: The operating and maintenance costs associated with the continual workings of a project.

Outfall: The point where wastewater or drainage discharges from a sewer pipe, ditch, or other conveyance to a receiving body of water.

Permitting Authority (PA): The NPDES-authorized state agency or EPA regional office that administers the NPDES Storm Water Program. PAs issue permits, provide compliance assistance, and inspect and enforce the program.

Physically interconnected MS4: This means that one MS4 is connected to a second MS4 in such a way that it allows for direct discharges into the second system.

Point Source Pollutant: Pollutants from a single, identifiable source such as a factory or refinery.

Pollutant Loading: The total quantity of pollutants in storm water runoff.

Qualifying local program: A local, State or Tribal municipal storm water management program that imposes, at a minimum, the relevant requirements of one or more of the minimum control measures includes in 122.34(b).

Regulated MS4: Any MS4 covered by the NPDES Storm Water Program (regulated small, medium, or large MS4s).

Retrofit: The modification of storm water management systems through the construction and/or enhancement of wet ponds, wetland plantings, or other BMPs designed to improve water quality

Runoff: Drainage or flood discharge that leaves an area as surface flow or as pipeline flow. Has reached a channel or pipeline by either surface or sub-surface routes.

Sanitary Sewer: A system of underground pipes that carries sanitary waste or process wastewater to a treatment plant.

Sediment: Soil, sand, and minerals washed from land into water, usually after rain. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Sheet flow: The portion of precipitation that moves initially as overland flow in very shallow depths before eventually reaching a stream channel.

Site Plan: A graphical representation of a layout of buildings and facilities on a parcel of land.

Site Runoff: Any drainage or flood discharge that is released from a specified area.

Small Municipal Separate Storm Sewer System (MS4): Any MS4 that is not regulated under Phase I of the NPDES Storm Water Program and Federally-owned MS4s.

Stakeholder: An entity that holds a special interest in an issue or program -- such as the storm water program -- since it is or may be affected by it.

Standard Industrial Classification (SIC) Code: A four digit number which is used to identify various types of industries.

Storm Drain: A slotted opening leading to an underground pipe or an open ditch for carrying surface runoff.

Storm Water: Precipitation that accumulates in natural and/or constructed storage and storm water systems during and immediately following a storm event.

Storm Water Management: Functions associated with planning, designing, constructing, maintaining, financing, and regulating the facilities (both constructed and natural) that collect, store, control, and/or convey storm water.

Storm Water Pollution Prevention Plan (SWPPP): A plan to describe a process whereby a facility thoroughly evaluates potential pollutant sources at a site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in storm water runoff.

Surface Water: Water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.

Total Maximum Daily Load (TMDL): The maximum amount of pollutants which can released into a water body without adversely affecting the water quality.

Tool Box: A term to describe the activities and materials that EPA plans to perform/produce to facilitate implementation of the storm water program in an effective and cost-efficient manner. The eight components include: 1)fact sheets; 2) guidance documents; 3) menu of BMPs; 4) compliance assistance; 5) information clearing house; 6) training and outreach efforts; 7) technical research; and 8) support for demonstration projects.

Urbanized Area (UA): A Bureau of the Census determination of a central place (or places) and the adjacent densely settled surrounding territory that together have a minimum residential population of 50,000 people and a minimum average density of 1,000 people/square mile. This is a simplified definition of a UA, the full definition is very complex.

Urban Runoff: Storm water from urban areas, which tends to contain heavy concentrations of pollutants from urban activities.

Watershed: That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Wet Weather Flows: Water entering storm drains during rainstorms/wet weather events.

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Region 9 (AZ, CA, HI, NV)
Environmental Protection Agency
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Region 10 (AK, ID, OR, WA)
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1200 Sixth Avenue
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Toll free: (800) 424-4372

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Storm Water Phase II Final Rule Fact Sheet Series, January 2000
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ATTACHMENT 3

Revised Monitoring Program

To meet the requirements of the District of Columbia's NPDES permit

Prepared for:
Department of Energy and Environment

July 2016

DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

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Revised Monitoring Program

To meet the requirements of the District of Columbia's NPDES permit

Draft

Prepared for:

Department of Energy and Environment

July 2016

DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

The following organization, under contract to the Department of Energy and Environment (DOEE) prepared this report:

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Executive Summary

The municipal separate storm sewer system (MS4) permit (Permit Number DC0000221, U. S. EPA 2011 and U. S. EPA 2012) for the District of Columbia requires the District to develop, public notice and submit to EPA for review and approval a revised monitoring program. This Revised Monitoring Program fulfills this requirement and describes how the program will meet the objectives set forth in the permit. It is expected that the revised monitoring program will be implemented over a five-year permit cycle spanning 2016 to 2020.

The Department of Energy and Environment (DOEE; formerly known as the District Department of the Environment, or DDOE)[1] is the designated MS4 Permit Administrator for the District. Internally, the Stormwater Management Division has responsibility for implementing the permit requirements. The Revised Monitoring Program builds upon a variety of monitoring activities that DOEE has carried out under previous MS4 permits since 2000. It is designed to ensure compliance with the MS4 permit; to help DOEE evaluate the effectiveness of the MS4 program; and to provide information that will inform management decisions. As such, it is essential to the success of the Consolidated TMDL Implementation Plan recently prepared by DOEE (2015).

DOEE submitted a draft of this Revised Monitoring Plan to EPA and published the document for public comment on May 8, 2015. During the public comment period no comments were received and no substantive changes have been made to the document.

Program Goals and Objectives

The goals of the Revised Monitoring Program are to provide data and information to allow DOEE to evaluate the effectiveness of its MS4 program and to provide support for any recommended changes in MS4 program activities. Adherence to these goals represents a shift away from a monitoring program that was largely centered on the characterization of pollutants in stormwater runoff.

The objectives for the Revised Monitoring Program are:

- Make wet weather loading estimates of pollutants from the MS4 to receiving waters.
- Evaluate the health of receiving waters.
- Conduct monitoring, as needed, for source identification purposes.
- Ensure the Revised Monitoring Program is aligned with the Consolidated TMDL IP.

The linkage of the goals and objectives of the Revised Monitoring Program with the individual monitoring programs implemented by DOEE is presented in Figure ES-1.

[1] Mayor's Order 2015-191, dated July 23, 2015, changes the Agency's name from District Department of the Environment (DDOE) to Department of Energy and Environment (DOEE).

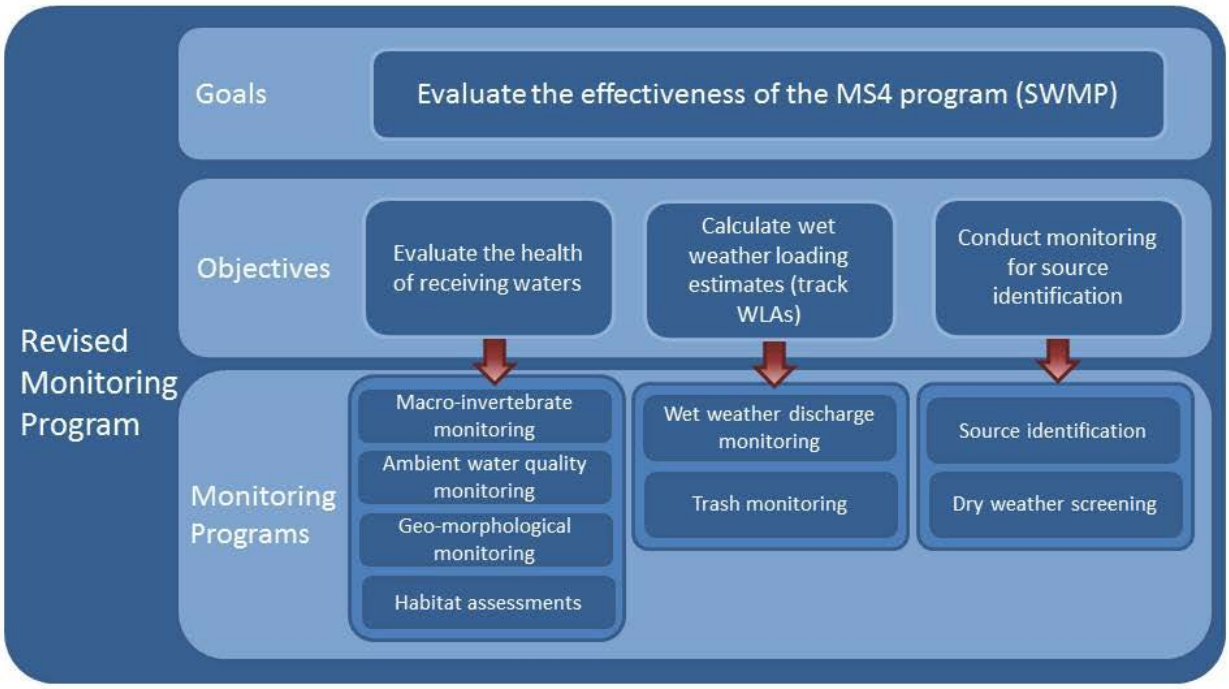

Figure ES-1. Linkage of Revised Monitoring Program goals and objectives with individual monitoring programs

As shown in Figure ES-2, the goals and objectives of the Revised Monitoring Program are closely tied to and supportive of the independent programmatic goals and objectives of DOEEs Water Quality and Watershed Protection divisions.

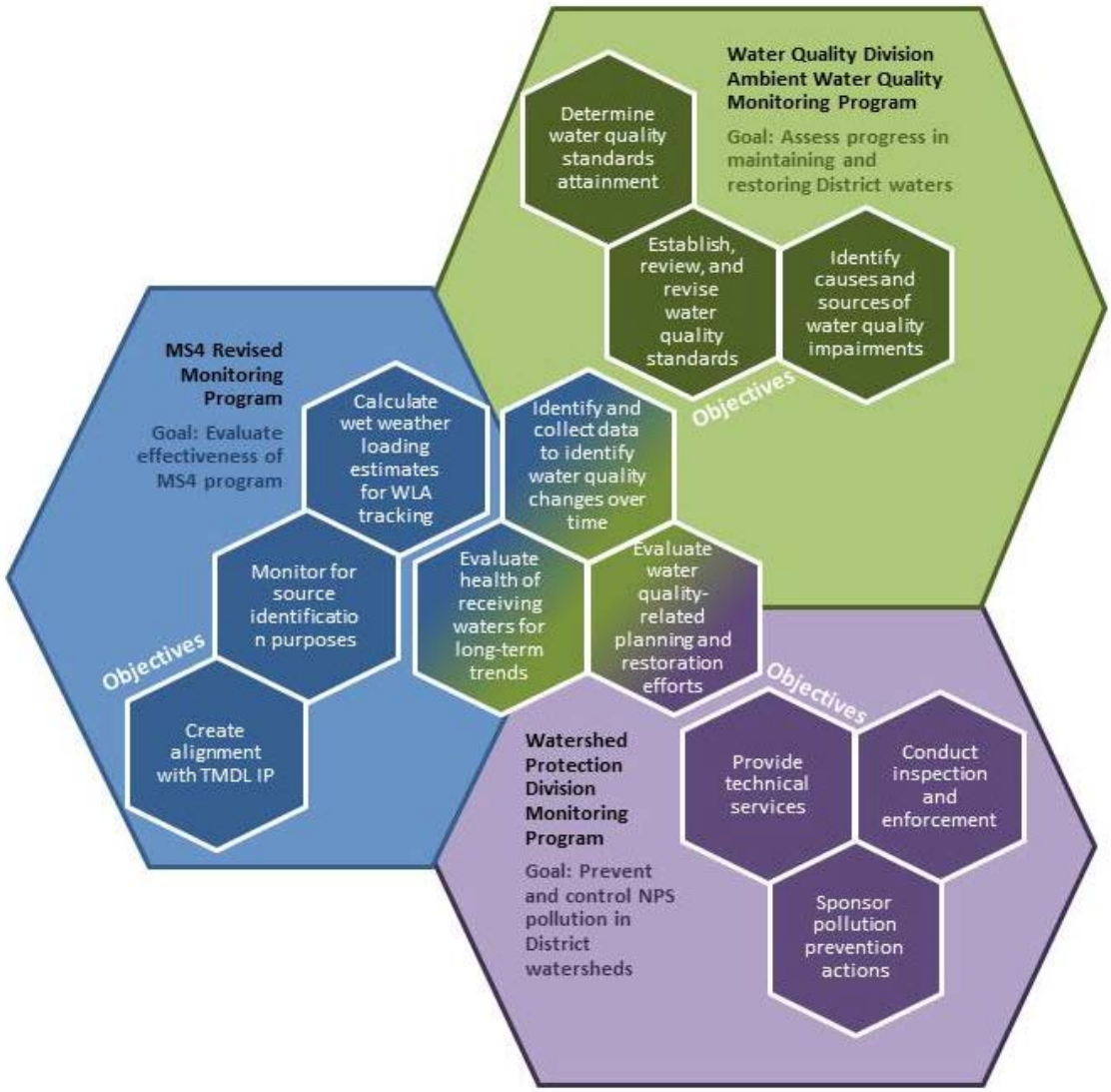

Figure ES-2. Overlap of goals and objectives of Revised Monitoring Program with other programmatic goals and objectives.

The District will take an adaptive management approach to implementation of the Revised Monitoring Program in order to integrate management with monitoring.

The Revised Monitoring Program consists of four distinct monitoring efforts.

- Wet Weather Monitoring
- Receiving Water Monitoring
- Source Identification and Dry Weather Screening
- Trash Monitoring

Each of these monitoring efforts along with brief descriptions of the quality of the stormwater program and data management are summarized in the following sub-sections.

Wet Weather Monitoring

Wet weather monitoring occurs at stormwater outfalls during rainfall events. The parameters to be monitored include those listed in Table ES-1. Trash will also be monitored during rainfall events, but at different sites. Trash will be described in a separate section.

Table ES-1. Parameters to be Monitored for Outfall Discharge (Source: MS4 Permit, Table 4)	
E. coli	Lead
Total nitrogen	Zinc
Total phosphorus	Copper
Cadmium	Total Suspended Solids

The wet weather monitoring program was designed to meet the specific objectives:

- Make wet weather loading estimates of the parameters included in Table ES-1.
- Collect data to support wasteload allocation tracking.
- Ensure that collected data are statistically significant and interpretable.

The selection of wet weather monitoring sites was based on several factors including the collection of long-term wet weather data for trend analysis, collection of data from sites that are representative of the District's discharges, and collection of data to support additional needs identified over the course of this permit cycle. Site selection resulted in three monitoring sites within each of the District's major watersheds (the Anacostia, Potomac and Rock Creek watersheds). Monitoring required to support additional data needs through "special studies" would potentially add more monitoring sites to the program.

Field sampling collection practices and documentation are discussed within this Monitoring Program, however, additional detail and specificity will be included within the QAPP(s) that will be developed once this Program has been approved by EPA. Statistical analysis was undertaken to align sampling frequency with trend analysis. Parameters that have had high non-detect rates in the past (predominantly metals and organic compounds) are identified; continued monitoring of these parameters has not been recommended in this Program. If there is particular interest in any of these parameters, it is recommended that they be monitored in the context of a special study.

The use of the wet weather monitoring data to support annual reporting requirements for the Discharge Monitoring Report and the MS4 Annual Report is described.

Receiving Water Monitoring

Receiving water monitoring has been conducted on the tributaries within the District outside of the stormwater program in the past but is a new requirement under the current MS4 permit. The main objective of this effort is to evaluate the health of the receving waters within the context of the MS4. The receiving water monitoring framework of the Revised Monitoring Program consists of three tiers: 1)

rapid assessment, 2) status and trends monitoring, and 3) targeted monitoring. Several indicies have been incorporated within this framework including:

- Benthic macroinvertebrates
- Geomorphological assessments
- Habitat assessments
- Receiving water quality

Site selection for receiving water monitoring that is tailored to the indices is addressed. Methods, protocols and equipment requirements are also discussed.

Dry Weather Screening and Source Identification

Dry weather screening occurs at stormwater outfalls during dry periods. It is undertaken to identify illegal, improper and unauthorized discharges to the MS4. The objective is to inspect each of the known and documented MS4 outfalls once within the five-year permit cycle.

Dry weather screening is built upon the mapping and prioritization of all MS4 outfalls. The procedures used for dry weather screening include:

- Visual monitoring
- Flow monitoring
- In-field chemical screening
- Desktop analysis and field investigation of potential sources
- Tracking and reporting

Collectively, these dry weather screening activities will identify sources of pollution that need to be addressed with changes in practices or structural solutions.

Trash Monitoring

Trash monitoring occurs at stormwater outfalls where trash traps have been installed during wet weather events. It will be implemented at three sites in the Anacostia Watershed, two in the Potomac Watershed, and one in the Rock Creek Watershed. A number of categories of trash are quantified and the total weight of trash from each site will be recorded.

Sample collection and analysis, quality control, reporting and adaptive management are described. The information collected through trash monitoring will inform the MS4 Program about trends in trash accumulation and the success of trash control efforts.

Quality of the Stormwater Program

The MS4 Permit requires the District to use the information collected through the Revised Monitoring Program to "evaluate the quality of the stormwater program." "Quality" is interpreted and defined as compliance with the MS4 permit and effectiveness of the stormwater management program. These two metrics are measured by progress made towards meeting benchmarks and milestones established in the Consolidated TMDL Implementation Plan. The approach that DOEE will use to evaluate the quality of the MS4 program is presented in Figure ES-3. As shown,

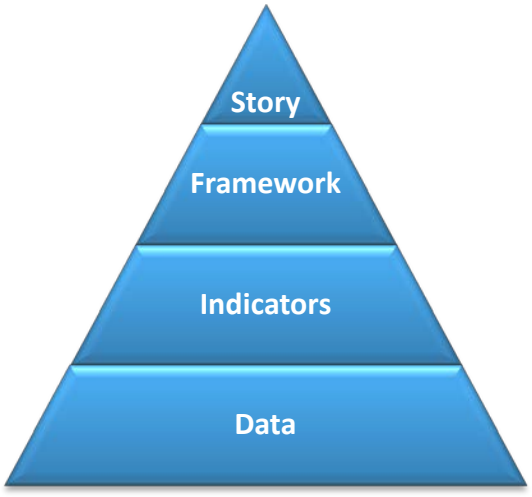

Figure ES-3. DDOE approach to evaluating the quality of the MS4 program (adapted from SCVURPPP 2001)

- The evaluation rests upon the data collected within the Revised Monitoring Program as well as information gathered through other components of the MS4 program.
- Indicators are used to show trends or responses to MS4 discharges, water quality, habitat, biology, and other programmatic objectives.
- The framework provides an integrated assessment of programmatic and watershed indicators.
- This approach allows DOEE to tell a "story" involving multiple lines of evidence to document the effectiveness of the stormwater management program.

Data Management

The data and information collected through monitoring efforts are a valuable and often irreplaceable resource. Therefore, retention and documentation of high quality data are the foundation upon which the success of monitoring programs rests.

The overarching data management goals are to:

- Ensure the highest quality and accuracy of program data.
- Fully qualify, document, and catalog all data to ensure their proper interpretation and use.
- Maintain data in an environment that ensures the long-term security and integrity of data.
- Ensure the longevity of data by keeping data formats standardized and current.
- Provide data in a variety of formats and venues to reach all potential users.

Detailed descriptions of database organization, data stewardship, data entry, metadata, data sharing, use of data from non-DOEE sources, and QA/QC are discussed and defined.

Schedule

The proposed schedule for the elements of the Revised Monitoring Program over the next permit cycle is presented in Table ES-2.

Table ES-2. Proposed Schedule for Monitoring Elements, 2016-2020.

		2016				2017				2018				2019				2020			
Monitoring Element	**Frequency**	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Wet Weather Monitoring	3 wet weather events each year	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dry Weather Screening	On a rolling basis so that each outfall is inspected once in the permit term	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Macroinvertebrates	Once during spring index period each year		■				■				■				■				■		
Habitat	Once during summer of the first year, then on an as-needed basis			■																	
Geomorphology	Once during summer of the first year, then on an as-needed basis			■																	
Receiving Water Quality	Once each month	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Trash	3 wet weather events each year	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Reporting																					
DMR	Due January 22 each year	■				■				■				■				■			
Annual Report	Due January 22 each year	■				■				■				■				■			
Evaluation and prioritization for next permit cycle	Once, in fourth year annual report													■							

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1 Introduction

The District of Columbia (the District) has been implementing monitoring efforts in response to National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permit requirements since 2000, when its first MS4 permit was issued. The District was reissued an MS4 permit in October 2011 (Permit Number DC0000221), which was subsequently modified in November 2012. Section 5 of this permit requires the District to design a Revised Monitoring Program.

This document describes the Revised Monitoring Program. It was designed to ensure compliance with the MS4 permit; to help DOEE evaluate the effectiveness of the MS4 program; and to provide information that will inform management decisions. To accomplish this, the Revised Monitoring Program incorporates four basic principles:

- Monitoring is focused on decision making – monitoring efforts are focused on data collection that is most helpful in making decisions about clearly defined regulatory, management, or technical issues.
- Monitoring intensity is oriented toward the potential for impact – monitoring efforts are focused where the potential impact is higher (i.e., higher probability of finding a pollutant source or finding a pollutant source that results in a more significant impact on District waters) and used less extensively in situations where the potential is lower or where monitoring is less likely to provide useful information.
- Monitoring is adaptive – the monitoring program incorporates the flexibility to be modified if needed. For instance, it can be modified if monitoring results identify the need to incorporate a follow-on study or if additional parameters or sites need to be monitored to gather the information required to understand sources or stressors and their impacts.
- Monitoring data are maintained in a way to be readily accessible for decision-making purposes – emphasis is placed on the collection of appropriate data. It is equally important to ensure these data are managed so that they are available when needed to assess progress and for any and all regulatory compliance purposes.

These principles are being accomplished through the incorporation of two overarching approaches within the Revised Monitoring Program:

- Core regulatory monitoring – includes long-term monitoring, intended to track compliance with specific regulatory requirements or limits, to conduct ongoing assessments, or to track trends in conditions over time. Thus, core regulatory monitoring generally occurs at fixed stations that are sampled routinely over time.
- Special studies monitoring - includes those efforts that may be shorter in duration, monitoring which may rotate location, or may collect data for a specific point in time. Examples of special

studies can include pre- and post-implementation monitoring of best management practices (BMP) at a site-specific or watershed-wide scale.

While these monitoring approaches can overlap, core regulatory monitoring will not necessarily provide enough data or information on which to base program decisions. Because of this, special studies may also be incorporated into the Revised Monitoring Program in select locations within the District or to collect specific data for a shorter duration. Determining if a special study will be developed and implemented will involve discussion within DOEE and will require answering a number of questions through a decision tree-type approach. Questions may include:

- Will data collected support MS4 programs and objectives?
- Will data collected support more than one DOEE program/project?
- Are sufficient funds available?
- What are the environmental benefits of the study?
- Do original data need to be collected or are literature values sufficient?

1.1 Drivers of the Revised Monitoring Program

As the MS4 Permit Administrator, DOEE's ultimate goal for the Revised Monitoring Program is an effective, integrated, and efficient monitoring framework that will comply with MS4 permit requirements. Although the MS4 permit is driving the development of the Revised Monitoring Program, DOEE also conducts monitoring in association with other programs not required by the MS4 permit. This includes ambient water quality monitoring and monitoring to support fisheries management. Coordination with these distinct monitoring programs will be initiated within the Revised Monitoring Program framework to achieve integration and efficiency.

While the Revised Monitoring Program has expanded its scope from the previous MS4 permit's focus of stormwater discharge characterization to evaluating the MS4 program's impact on the watersheds and its receiving waters, the focus remains on those impacts from the MS4 itself. Consequently, the Revised Monitoring Program is not focused on other pollutant sources that contribute to the impairment of water bodies in DC. Its relationship to other sources like DC Water's combined sewer system and upstream sources in Maryland and Virginia is peripheral.

In addition to a Revised Monitoring Program, the MS4 permit also requires DOEE to develop a Consolidated Total Maximum Daily Load (TMDL) Implementation Plan (IP) to define and organize a multi-year process centered on reducing pollutant loads originating within the District's MS4. The TMDL IP was developed in close coordination with the Revised Monitoring Program to ensure that the two efforts inform each other. Examples of this coordination can be found in Sections 3 (Wet Weather Monitoring), 5 (Trash Monitoring), and 6 (Quality of the Stormwater Program).

1.2 Adaptive Management

Adaptive management is an iterative, ongoing, learning process used to continually improve understanding and management policies and practices by learning from the outcomes of program activities over time (DOI 2009, City of Olympia 2003). It is a blend of scientific research, monitoring, and practical management upon which an experimental approach is applied that allows the user to test

various approaches and solutions and "learn by doing" (EPA 2005). Adaptive management relies on scientific methods to evaluate how well regulatory and non-regulatory actions achieve their objectives (City of Olympia 2003). It is a necessary and useful tool because there is an inherent uncertainty about how ecosystems function and how management affects ecosystems (EPA 2005). Adaptive management recognizes and allows for this uncertainty and incomplete knowledge that typify complex ecosystem dynamics (City of Olympia 2003).

Fundamental to the adaptive management approach is the integration of "management" and "monitoring," recognizing that any management action in the context of a complex ecological system is ultimately experimental, requiring feedback to make progress (PSSWG 2010). Monitoring is an essential part of the adaptive management process because it is a tool for decision-making or determining required adaptations to programs and practices. As a result, this concept of adaptive management is included as a key element of DOEE's Revised Monitoring Program wherein new information about the health of the District's watersheds influences DOEE's subsequent data collection, planning, and decision making processes.

DOEE conducts a number of storm and surface water quality monitoring studies across the District. These studies have included characterization of urban stormwater quality, water body-specific monitoring studies, and assessments of effective BMPs. As data and information are collected over time, a more complete picture of the condition of District's stormwater and receiving water systems is formed. This picture may also include the identification of additional data needs, such as analysis of additional parameters, sampling at additional sites, or inclusion of new monitoring techniques.

Adaptive Management

Adaptive management [is a decision process that] promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.

(DOI 2009)

Each of the monitoring efforts described in this Revised Monitoring Program incorporate the concept of adaptive management as a way to ensure DOEE continues to collect the data and information that will actually inform managers about issues and needs, and ultimately result in improved water quality protection and reduced pollutant discharge to the storm and surface water system.

It is not possible, however, to monitor every stormwater outfall, control structure or BMP within the District because monitoring efforts are expensive and resource intensive. DOEE's challenge is to design monitoring activities to most efficiently identify water quality issues and inform management actions and management tools. Therefore, a balance between site-specific monitoring and the application of

models to expand the understanding of the MS4 is advantageous. Monitoring is necessary as implementation of practices and programs proceed. This is important because monitoring helps DOEE evaluate the effectiveness of the requirements included in the MS4 permit as well as the effectiveness of the controls used to reduce the various pollutants addressed through the TMDL IP.

Conducting monitoring to assess the performance of specific BMPs allows for determination of whether the practices are performing as anticipated. Monitoring during the implementation process reveals what practices or designs are working. If monitoring data indicate that control measures are not performing as anticipated, adjustments to factors in the model that incorporates the performance of these practices might be needed. Evaluation of alternative practices and programs within the stormwater program may also be warranted.

Through the application of the adaptive management approach to TMDL implementation, the District will continue to evaluate the effectiveness of different controls at reducing different sources of pollution. This process of "learning by doing", which is inherent in adaptive management, will provide the District with insight and knowledge that will help it most effectively target controls for different sources based on site-specific monitoring information.

Ultimately the information collected will be used to inform the overall adaptive management strategy, and be used to modify future activities or verify the activities are appropriate to help ensure control goals are met.

1.3 Revised Monitoring Program Contents

While an approach for the Revised Monitoring Program is laid out in this document, it is important to note that specific details, such as the final location of monitoring sites, parameters to be analyzed, or frequency of monitoring proposed, should be considered preliminary, and may be modified based on wider DOEE data needs that may be incorporated into this monitoring effort, monitoring site access issues, comments and feedback from the public and/or EPA, etc.

Additionally, while a significant amount of information is included within each section of this document, it does not include the level of detail necessary to carry out the monitoring without a quality assurance project plan (QAPP). An approved QAPP already exists for current monitoring programs (e.g., wet weather monitoring, trash monitoring). These documents will be revised as needed to mirror the approach discussed in this Revised Monitoring Program. In addition, a QAPP will be developed for new monitoring efforts, such as the receiving water monitoring that will be conducted to meet the MS4 permit requirements.

The Revised Monitoring Program is organized as follows:

Section 2 – Goals and Objectives – this section discusses the drivers behind the Revised Monitoring Program and the interrelationship with other DOEE monitoring programs.

Section 3 – Wet Weather Monitoring – this section describes data that will be collected during wet weather events from stormwater outfalls to characterize the impact of the MS4 program on stormwater discharges.

Section 4 – Receiving Water Monitoring – this section describes a program that is new to the MS4 permit and responds to the MS4 permit objective for DOEE to evaluate the health of receiving waters. It discusses how receiving water quality will be used to evaluate the impact and effectiveness of the stormwater program.

Section 5 – Source Identification and Dry Weather Screening – this section describes the identification of sources of pollution to the MS4 system as well as screening of any dry weather discharges from stormwater outfalls that may occur.

Section 6 – Trash Monitoring – this section describes monitoring of trash from stormwater outfalls during wet weather events. Trash monitoring is discussed separately from other wet weather monitoring because the methodology required to collect trash is significantly different than other water quality parameters.

Section 7 – Quality of the Stormwater Program – this section describes how information collected through the Revised Monitoring Program will be used to evaluate the effectiveness of the stormwater program. It describes how DOEE is interpreting this requirement, the approach that will be used to achieve this requirement, and how associated information will be conveyed to EPA and stakeholders.

Section 8 – Data Management – this section discusses DOEE's data management goals and objectives and the overarching process that will be used to facilitate data management within the context of the Revised Monitoring Program.

1.4 Proposed Schedule for the Revised Monitoring Program

There are many components to the Revised Monitoring Program, including:

- Wet Weather Monitoring
- Dry Weather Screening
- Receiving Water Monitoring
    - Macroinvertebrates
    - Habitat
    - Geomorphology
    - Water Quality
- Trash

The proposed schedule for all components listed above, as well as major reporting requirements within the next permit cycle (2016-2020) is provided in Table 1-1.

Table 2-1. Proposed Schedule for Monitoring Elements, 2016-2020.

		2016				2017				2018				2019				2020			
Monitoring Element	Frequency	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Wet Weather Monitoring	3 wet weather events each year	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dry Weather Screening	On a rolling basis so that each outfall is inspected once in the permit term	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Macroinvertebrates	Once during spring index period each year		■				■				■				■				■		
Habitat	Once during summer of the first year, then on an as-needed basis			■																	
Geomorphology	Once during summer of the first year, then on an as-needed basis			■																	
Receiving Water Quality	Once each month	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Trash	3 wet weather events each year	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Reporting																					
DMR	Due January 22 each year	■				■				■				■				■			
Annual Report	Due January 22 each year	■				■				■				■				■			
Evaluation and prioritization for next permit cycle	Once, in fourth year annual report													■							

2 Program Goals and Objectives

Development and implementation of a revised monitoring program require a comprehensive understanding of the program's overarching goals and objectives. This information helps to inform the scope, design, and execution of the monitoring program, so that the data collected can help to answer important management questions.

MS4 permit-related monitoring has been occurring within the District since 2000. DOEE's previous MS4 permits included the requirement for monitoring with a focus on characterization of dry and wet weather conditions. In the current permit's Fact Sheet, EPA explains that DOEE's new MS4 permit provides an opportunity to shift the focus of the MS4 monitoring program from characterization toward an approach that allows DOEE to "more effectively evaluate the effectiveness of the [MS4] program…"

Thus, the ultimate goal of the Revised Monitoring Program is to provide data and information to allow DOEE to evaluate the effectiveness of its MS4 program, and to provide support for any recommended changes. Section 5.1.1 of the MS4 permit outlines a series of objectives for the Revised Monitoring Program that will be used, in part, to reach this goal. Each of these objectives is described below:

- **Make wet weather loading estimates of pollutants from the MS4 to receiving waters.** These loading estimates will be used to support WLA tracking efforts and evaluate progress toward TMDL goals. DOEE needs to ensure these data are statistically significant to support the development of long term trends.
- **Evaluate the health of receiving waters.** This will include evaluating the impact of discharges from the MS4 on receiving waters as seen through water quality, biological, and geomorphological indicators. DOEE also needs to ensure these data are statistically significant to support the development of long term trends.
- **Conduct monitoring, as needed, for source identification purposes**. This will include identifying and prioritizing sources of urban runoff pollutants to the MS4 through source identification and dry weather screening efforts
- **Ensure the development of the Revised Monitoring Program is aligned with the Consolidated TMDL IP.** Various elements of the Revised Monitoring Program will feed information to the TMDL IP to directly or indirectly support the tracking of milestones, benchmarks and other programmatic performance measures. In addition, questions or issues that stem from the IP may direct modifications to the monitoring program.

Figure 2-1 depicts the goals and objectives of the Revised Monitoring Program with the monitoring programs implemented by DOEE. It should be noted that, while this may be the immediate focus of the MS4 permit-driven Revised Monitoring Program, DOEE will continue to address other goals and objectives to ensure it collects data and information needed to make program decisions that is not specifically tied to the MS4 permit.

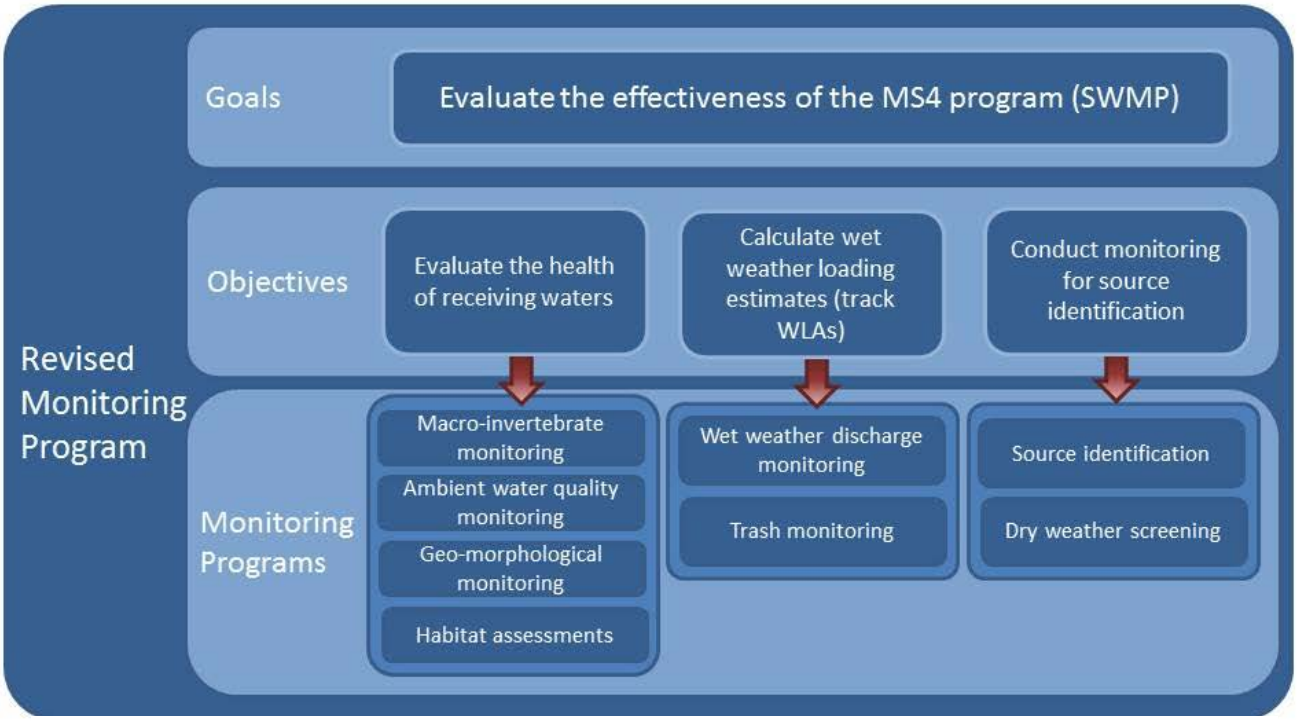

Figure 2-1. Linkage of goals and objectives of the Revised Monitoring Program with the individual monitoring programs

Other Divisions within DOEE's Natural Resources Administration conduct monitoring to meet different goals and objectives for other environmental programs. For instance, the Water Quality Division's (WQD) Monitoring and Assessment Branch has Clean Water Act (CWA) driven goals and objectives. The goal of the WQD's Water Quality Monitoring Program (WQMP) is to collect and analyze high quality data to assess progress in the District's efforts to maintain and restore the physical, chemical, and biological integrity of the District's waters.

The objectives of the WQMP are directly tied to water quality requirements found in the CWA including:

- Determining water quality standards attainment (CWA Section 305(b)).
- Identifying causes and sources of water quality impairments (CWA Sections 303(d), and 305(b)).
- Establishing, reviewing, and revising water quality standards (CWA Section 303(c)).

The monitoring program objectives also include:

- Identifying and collecting data that may be used in documenting water quality changes over time.
- Establishing appropriate and useful water quality monitoring protocols in support of the District's water quality standards.

One of the Watershed Protection Division (WPD)'s goals is to protect and restore the health of the District's watersheds. The objectives tied to this goal include:

- Enacting stormwater management and sediment and erosion control regulations for construction sites.
- Implementing an Environmental Education Program to educate District teachers, students, and residents on the benefits of environmental stewardship.
- Assessing the health of watersheds and habitats through monitoring activities.
- Recreating wetlands and restoring stream corridors and buffers to improve watershed health.

While a number of these objectives are distinct, overlap does exist for several MS4 Permit-required monitoring activities and those performed under the WQMP and WPD (Figure 2-2). The MS4 Revised Monitoring Program will take advantage of this overlap by coordinating data collection efforts across these Divisions. This will allow DOEE to build upon existing monitoring efforts, recognize efficiencies between programs, and collect data and information in a way that most effectively meets the goals and objectives of multiple programs in a coordinated manner.

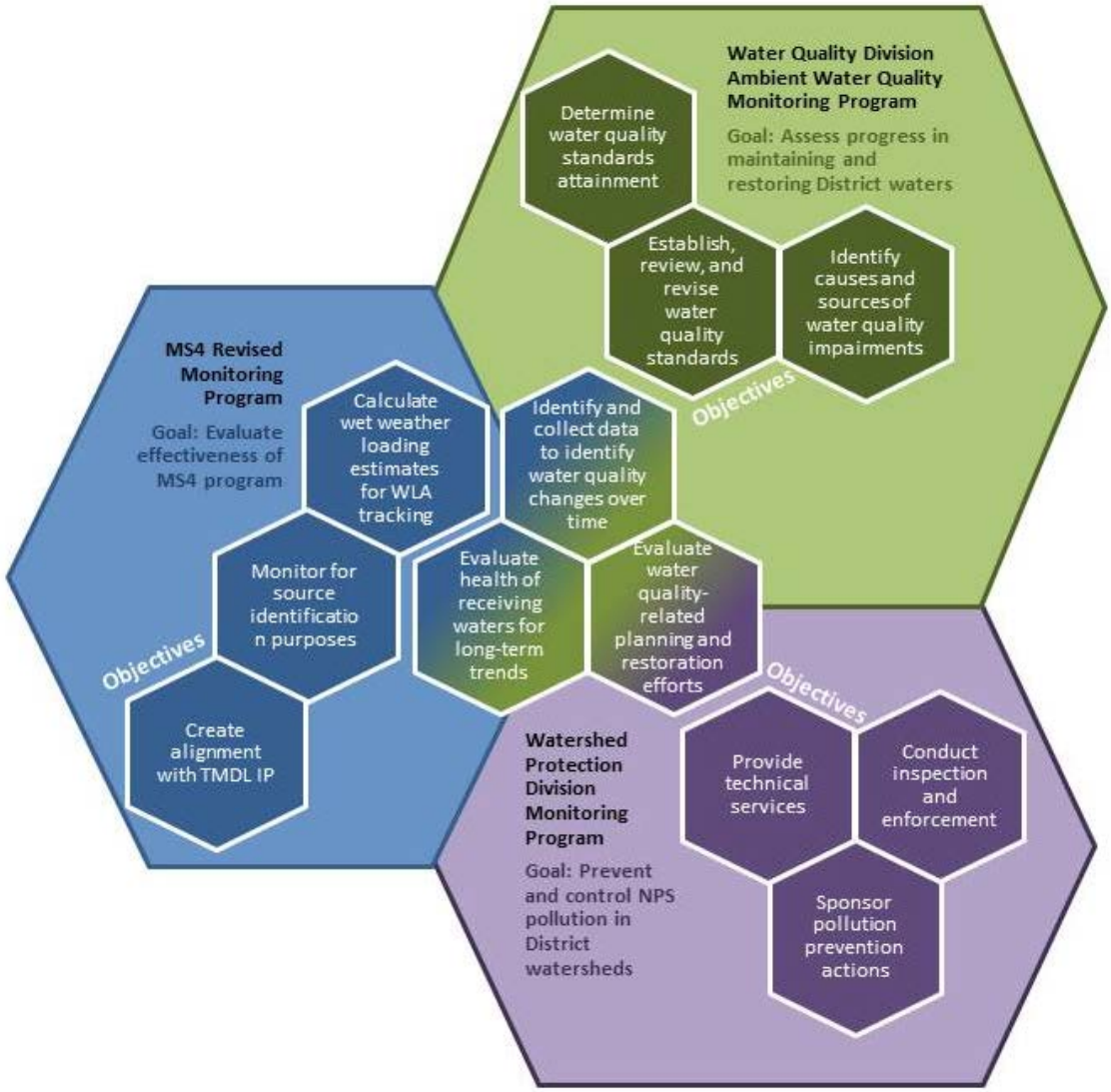

Figure 2-2. Overlap of goals and objectives of DDOE's Stormwater Management Division's Revised Monitoring Program and the Water Quality Division's Water Quality Monitoring Program

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3 Wet Weather Monitoring

3.1 Introduction

DOEE began implementing wet weather monitoring at outfalls in the District in 2000 when its first MS4 permit was issued. Wet weather monitoring continued under DOEE's 2004 MS4 permit on a rotating watershed basis. Depending on the watershed, either eight or nine outfall stations were monitored annually. As a result, monitoring occurred in one of the watersheds each year so that each watershed was monitored once every three years. Three wet weather events were sampled at each outfall within the designated watershed each year.

Because the focus of the wet weather monitoring under previous MS4 permits was the characterization of pollutants in stormwater runoff, a large number of sites and an extensive list of parameters were analyzed for each event. The District's current MS4 permit requires an interim version of the wet weather monitoring program that is to be implemented until the Revised Monitoring Program is approved by EPA. The interim program requires six stations (two per watershed) to be monitored each year during three wet weather events. The interim program also includes a significantly reduced list of parameters for which DOEE must monitor, removing those that routinely have shown non-detect concentrations or those for which significant water quality problems have not been identified. The revised wet weather monitoring program builds upon this interim program by continuing to focus on pollutants of concern identified by historical data.

The District's MS4 permit includes a series of objectives for the revised wet weather monitoring program including:

- Making wet weather loading estimates of the parameters included in Table 3-1, below
- Collecting data to support wasteload allocation tracking
- Ensuring data are statistically significant and interpretable

Table 3-1. Parameters to be Monitored for Outfall Discharge (Source: MS4 Permit, Table 4)

E. coli	Lead
Total nitrogen	Zinc
Total phosphorus	Trash*
Cadmium	Copper
Total Suspended Solids	

* Trash monitoring is discussed separately in Section 6.

The revised wet weather monitoring program has been designed to meet these objectives as well as to support DOEE's overarching MS4 permit goal of evaluating the effectiveness of the MS4 program.

3.2 Study Design

The design of the wet weather monitoring program is based on a combination of past efforts (to provide consistency) and the new requirements under the MS4 permit. The major differences in study design between previous monitoring efforts and this revised wet weather monitoring program are:

- Fewer parameters analyzed
- Randomly selected sites added
- Special studies added
- No rotation of sites from year to year based on watershed—all sites will be monitored each year across the District

The changes in this monitoring program were selected in order to address gaps identified in previous wet weather monitoring efforts, provide consistency from year to year for trend analysis, and to prioritize resources.

It should be noted that specific details discussed in this study design should be considered preliminary and will be finalized upon feedback from the public and/or EPA during this document's public comment period, desktop analysis and field visits (e.g., site accessibility issues, etc.), and incorporation of wider DOEE data needs (i.e., selecting a site that may provide data for more than one DOEE program, collecting additional water quality parameters, etc.).

3.2.1 Water Quality Parameters

The District's current MS4 permit identifies a set of parameters for which wet weather monitoring is required at outfalls. EPA established this set of parameters as those for which stormwater WLAs exist or those that occur in discharges with sufficient concentration and frequency to be considered a pollutant of concern (i.e., cadmium) (EPA 2011).

There are a number of reasons to limit wet weather monitoring to the set of parameters identified in the permit, compared to the much longer list that was analyzed for previous efforts. One is that monitoring for many other pollutants with WLAs (e.g., mercury, PCBs, pesticides) produces a high rate of non-detection, and adds little to improve DOEE's understanding of the effectiveness of the MS4 Program. A second is that monitoring for other parameters is not cost-effective. Five *in-situ* measurements will also be monitored to provide context for the other parameters (Table 3-2).

Table 3-2. Sample parameters and collection method

Composite Samples	Grab Samples	In-situ measurements
Total Suspended Solids	*E. coli*	Water Temperature
Total Nitrogen		Dissolved Oxygen
Total Phosphorus		Conductivity
Copper		pH
Lead		Hardness
Zinc		
Cadmium		

3.2.2 Storm Criteria and Sample Frequency

Wet weather monitoring at outfalls is performed only during qualifying rainfall events. A qualifying event is defined as a storm with at least 0.1 inches of predicted precipitation that occurs at least 72 hours from the end of a previous rainfall event with at least 0.1 inches of measured rainfall within the District. Three wet weather events will be sampled per year.

Rainfall data will be collected from the Reagan airport weather station, or another weather station that is determined to be closer or otherwise more appropriate for accurate storm prediction.

3.2.3 Monitoring Sites

The selection of wet weather monitoring sites is based on several factors including the collection of long-term wet weather data for trend analysis, collection of data from sites that are representative of the District's discharges, and collection of data to support the additional needs as identified over the course of this permit cycle. While land use was initially considered in the site selection process, it was determined that it was an unnecessary factor. This is because the land use in each subwatershed in the District is, in general, homogeneous, and thus, it is difficult to correlate discharge characteristics with any specific land use. Site selection resulted in three monitoring sites within each of the District's major watersheds (the Anacostia, Potomac and Rock Creek watersheds). Monitoring required to support additional data needs through "special studies" would potentially add more monitoring sites to the program.

3.2.3.1 Selection of Continuous Record Sites

Three monitoring sites were selected to maintain a continuous record with data collected to date and to evaluate the statistical significance of any changes observed in outfall water quality samples over time (including events from previous permit cycles). This group of continuous record monitoring sites includes one site within each of the District's three major watersheds. Sites were selected from the existing pool of sites that have been sampled for past wet weather events. These sites will not change over the course of the permit cycle.

A desktop analysis was conducted to consider which sites are representative of conditions throughout each major watershed and appropriate for trend analyses. The 26 MS4 monitoring sites used between 2001 and 2013 were considered the "baseline" group of locations. A matrix was developed that characterized each site by land use, percent impervious cover, major watershed, drainage area, receiving body of MS4 effluent, whether the MS4 pipe may contain portions of a historic (now piped) stream, and if the MS4 pipe drains to or from Maryland (Appendix 1). All of these characteristics were considered in order to determine the past "representativeness" of the sites within the District, and to help determine if there were any locations that would not meet the needs of the new permit requirements. The precise location of sites and issues at each site (e.g., access) were obtained and included in the analysis. The proposed continuous record sites are:

1. Anacostia HS (Anacostia River watershed)[2]
2. Archbold Parkway (Potomac River watershed)
3. Walter Reed/Ft Stevens (Rock Creek watershed)

3.2.3.2 Selection of Random Sites

In addition to the continuous record sites described above, a stratified random selection method was used to randomly select two additional sites within each of the three major watersheds in the District.

Sample sites were randomly generated with the Generalized Random Tessellation Stratified (GRTS) methodology. This technique was employed to ensure that selected sampling sites are spatially balanced among the major watersheds. The GRTS process is an alternative to a purely random sampling approach, which may result in a cluster of sampling points in one area and leave another area free of sample points (EPA, 2015). The core concept of GRTS is to iteratively apply a hierarchical grid, until no two potential sample sites are within the same cell, and subsequently selecting sample sites so that adjacent cells are unlikely to be randomly chosen as sample sites (See Appendix 2 for more details on GRTS).

Sampling sites were selected from a pool of all outfalls greater than or equal to 24 inches in diameter in the MS4 area of the District. All outfalls meeting these criteria in the District were included in the randomization process, to ensure that the selected outfalls are representative of all outfalls. The median size pipe in the MS4 area is 24 inches and thus, the most representative size. It is assumed that pipes greater than 24 inches will drain a greater mix of land uses and greater land area, and therefore be more representative of the mixed land use of the District in general. Conversely, smaller pipes are assumed to drain smaller areas, possibly even a single business, and may produce outlier results. Figure 3-1 shows the sites that were selected using the GRTS approach and Table 3-3 provides additional details on these outfalls.

Three over-sample sites were also chosen in GRTS. These sites are “back up” sites to be used in case an outfall is determined to be inaccessible, unsafe, is tidally influenced, or otherwise inappropriate for sampling. Any outfall deemed inappropriate for wet weather monitoring will be replaced only with an over-sample site from the same watershed. All of the randomly-selected sites will continue to be monitored for each wet weather event within the permit cycle, unless an unforeseen issue (e.g., access, vandalism, etc.) is identified by DOEE that provides reasonable justification for proposing another site.

3.2.3.3 Selection of Special Study Sites

In addition to the annual wet weather sampling program at continuous record and random sites described above, “special studies” may be implemented in order to support the TMDL implementation plan or other DOEE monitoring goals. Some examples for special studies include:

- Monitoring for pollutants other than the nine recommended in Table 3-1 to determine if more sensitive analytical methods will produce results that show a detectable level of the pollutant where previous results have been largely non-detectable.

[2] The current Anacostia High School wet weather site is a manhole so the nearest outfall will be selected if feasible

- Monitoring additional sites in catchments where more development and redevelopment is expected to occur (e.g., Hickey Run, Broad Branch) in order to track impact of BMP implementation.
- Monitoring of flow in a continuous manner to improve the runoff module of the IP Modeling Tool.
- Monitoring additional sites in the Watts Branch watershed because of the size of the Watts Branch Watershed and the significant investment in stream restoration and stormwater management made by both the federal and District governments.

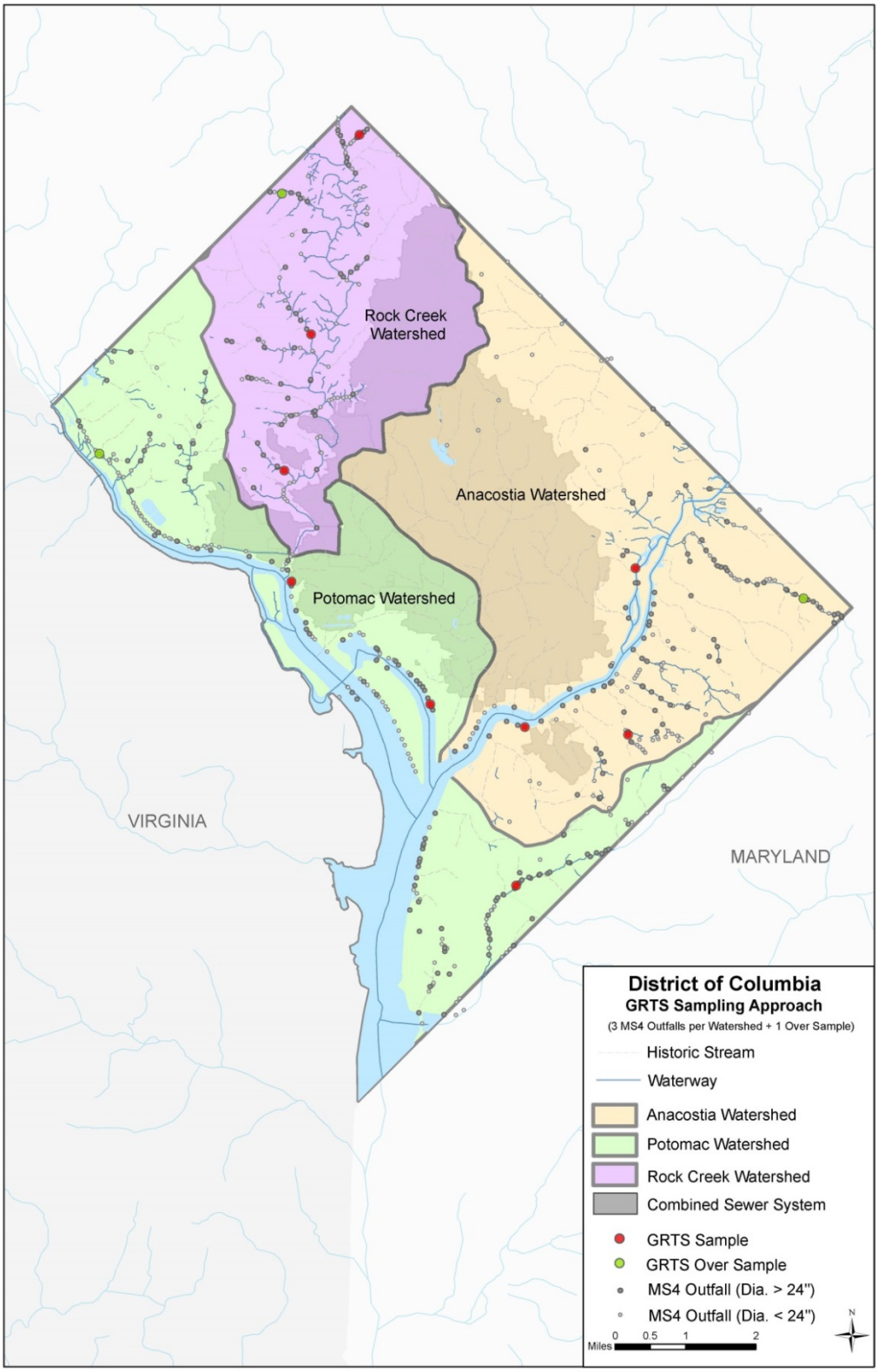

Figure 3-1. Example of sites selected using the GRTS approach for wet weather sampling

Table 3-3. Information on Randomly Selected Wet Weather Outfall Monitoring Sites*			
Wet Weather			
Watershed	Outfall Unique ID	Diameter (in)	Receiving Water
Potomac River	F-391-C-6-7-SW	24	Washington Ship Channel
Potomac River	F-240-K-3-NW	72	Potomac River
Potomac River	F-284-CD-19-20-SE	48	Oxon Run
Potomac River	F-22-TU-11-12-NW	72	C&O Canal
Anacostia River	F-538-CD-7-8-SE	42	Anacostia River
Anacostia River	F-412-IK-7-8-SE	48	Texas Avenue Tributary (unnamed tributary to)
Anacostia River	F-683-IK-3-4-NE	24	Anacostia River
Anacostia River	F-562-RS-1-2-NE	24	Watts Branch
Rock Creek	F-357-EF-33-34-NW	36	Portal Branch
Rock Creek	F-186-IK-11-12-NW	24	Normanstone Creek
Rock Creek	F-139-IK-19-20-NW	24	Broad Branch
Rock Creek	F-91-IK-29-30-NW	54	Pinehurst Branch (unnamed tributary to)

*Sites include the two randomly selected sites as well as two randomly selected "oversample" sites per watershed that will be available if primary sites are determined to be unsuitable.

3.3 Sample Collection

This section provides an overview of the field sampling collection methods and documentation that will be implemented during the monitoring program.

3.3.1 Sampling Procedure

3.3.1.1 Composite Samples

There are two methods for collecting composite samples: flow proportional composite auto-sampling and time-based composite sampling. Flow-proportional composite auto-sampling will be used where possible at all sampling sites. Flow-proportional sampling involves collecting an equal volume of stormwater at equal increments of flow volume. For example, one sample aliquot is collected for every thousand cubic feet of flow. Flow-proportional sampling enables collection of samples at a higher frequency when flow rates are higher, and at a lower frequency when flow rates are lower. This method provides a direct measure of the relationship between pollutant concentration and flow rate, and it allows for a direct calculation of event mean concentration (EMC) for the contributing drainage area. Flow-proportional sampling requires the use of an auto-sampler capable of collecting flow-proportional samples.

Flow-proportional composite sampling requires estimation of the expected volume of discharge during the wet weather event to avoid collecting too small of a sample volume or filling all of the available sample volume before the completion of the wet weather event. There should be sufficient bottle capacity to collect more volume than required by the lab in order to allow for larger or smaller than

expected storm events. In addition, the auto-sampler must be paired with a flow meter to trigger the collection of samples based on a specific flow interval contingent on the expected volume of the wet weather event. If a flow meter cannot be installed, a level sensor will be used in conjunction with pipe cross-section information.

If there are restrictions that prevent installing a flow meter within the pipe, or the use of an auto-sampler, another nearby location will be selected that allows for this equipment installation. If a nearby site is not available, or it is determined that this type of installation is generally not possible due to physical, permitting, or safety constraints, then time-based sampling will be used.

Time-based composite sampling requires manual compositing of samples from time-series aliquots. Sample aliquots of the same volume are taken at a specific time interval (e.g., every 15 minutes). If possible, a flow meter or level sensor will be used to measure pipe flow. If this is not possible, visual estimation of pipe flow at the time of each sample aliquot sample is required for this method. Manual time-based compositing and visual estimation of pipe flow are not as accurate and will only be used when automatic flow-proportional composite sampling is not possible.

3.3.1.2 Grab Samples

Grab samples will be collected using manual methods and equipment to monitor for *E. Coli*. Grab samples will be collected by holding a sterile sample bottle container under the outfall of a discharge pipe, at the lip of an inlet grate, or by dipping a container downstream of a discharge with the container opening facing upstream, depending on monitoring site configuration.

3.3.2 Field Sampling Practices and Documentation

If field preservation is required, the appropriate preservative will be placed into the sample container prior to sample collection. All samples collected will be stored in the appropriate container type no longer than the time allowable for the analyte and the analysis performed. Field meters will be calibrated in accordance with the manufacturer's recommendations.

Water quality samples will be labeled and field logs filled out with important information. Completed chain-of-custody forms will be required for all samples to be analyzed. A chain-of-custody is a legally-binding record of the date and time periods that samples were in the possession (e.g. custody) of the parties indicated.

Further details will be provided in a QAPP.

3.3.3 Storm Event Data

Storm event data will be collected in association with each wet weather monitoring event in accordance with MS4 permit Section 5.2.2. This information is collected to provide specifics of weather conditions when data is collected to help with interpreting results. Storm event data recorded in the field log must include:

- Date and duration (hours) of the event sampled
- Direct measurement or estimate of rainfall amounts (in inches) associated with the event

- Duration (in hours) between storm events sampled and the end of the previous measurable storm event (greater than 0.1 inch of rain)

3.4 Statistical Significance

The MS4 permit states that monitoring data should be statistically significant and interpretable. A statistical analysis was undertaken to address this requirement. In particular, this analysis was focused on identifying the number of samples required to significantly detect changes from existing wet weather monitoring data. This analysis was based on water quality data previously collected by DOEE at each outfall from 2001 to 2013. For the detailed report, see Appendix 3.

Prior to performing this statistical analysis, the concentrations of each pollutant were compared across each of the major watersheds using an Analysis of Variance (ANOVA) to determine if samples from outfalls could be pooled. The results from the ANOVA test indicated that TSS and zinc were the only pollutants that were significantly different across the major watersheds. For these significance estimates, it was assumed that pollutant trends will not deviate in the future, and all pollutant data, with the exception of TSS and zinc, can be taken at any sampling site to identify District wide changes with the desired significance. This approach will limit the need to extrapolate trends observed at single outfalls to make characterizations about the entire District. TSS and zinc measurements must be compared only to existing data from the same watershed.

The results of the statistical analysis are summarized in Table 3-4. The number of samples required to detect a 25% change in mean concentration and number of years to detect a change estimate future measurements based on analysis of past data. This is provided as an example of the analysis done, but does not imply that the number of samples needed to detect a 25% change will be collected during wet weather.

Table 3-4. Required samples to detect 25% change in mean concentration for power = 0.80 and p<0.05			
Pollutant	**No. of existing measurements**	**Minimum No. of samples to detect 25% change***	**No. of years to collect samples**
Total Nitrogen	200	67	2.5
Total Phosphorus	203	45	1.7
Total Suspended Solids (Anacostia)	78	N/A	N/A
Total Suspended Solids (Potomac)	61	N/A	N/A
Total Suspended Solids (Rock Creek)	59	N/A	N/A
Copper	212	159	5.9
Fecal Coliform Bacteria[3]	121	N/A	N/A
Lead	205	N/A	N/A
Zinc (Anacostia)	93	63	7.0
Zinc (Potomac)	61	293	32.6
Zinc (Rock Creek)	66	109	12.1

*Gains no longer considered appreciable when power can be rounded to the same hundredth of the maximum attainable power. For explanation of "N/A" entries in the table, see Appendix 3.

The time it will take to detect 25% changes ($p<0.05$, power=0.80) from the existing dataset differs for each pollutant due to the existing number of and variability in the existing sample measurements. With the proposed sampling frequency of three events per year, a 25% change can be identified for TN and TP within a five-year permit cycle, and the same changes can be identified in copper and zinc in the Anacostia watershed within two permit cycles. The detection of 25% changes in the remaining pollutants with the desired significance could not be reached because of the very high variability in the existing data. This does not necessarily mean that this change will go unidentified, but the likelihood that a change will be identified is less than the desired power. While differences in concentration means before and after the Consolidated TMDL IP gets underway may not be statistically significant, the changes may still help discern patterns of improvements in the MS4.

3.5 Reporting Requirements

There are two major reports that must be submitted each year to EPA that summarize the annual monitoring results: the Discharge Monitoring Report (DMR) and MS4 Permit Annual Report. Additionally, six months before the expiration of the current permit, a new MS4 permit application must be submitted, which will include the analytical data collected through this monitoring program.

The requirements for the DMRs and Annual Reports are described below.

[3] Fecal coliform bacteria data were used as a surrogate for E. Coli since there were insufficient E. Coli data collected for statistical analysis.

3.5.1 Discharge Monitoring Reports

DMRs are due each year on the anniversary of the effective date of the Permit (January 22nd in the current Permit term). Data may be uploaded to http://www.epa.gov/netdmr or, if that page is unavailable, an original and one copy must be sent to the two addresses provided in section 5.7 of the permit (NPDES Permits Branch of EPA Region 3 and NMFS Northeast Region). The DMRs must include all analytical chemical results of all monitoring described in Section 5 of the permit (storm event data, wet weather loading, dry weather screening, and flow). Results should also include any data collected that were not required by the permit. For example, if a pollutant was monitored more frequently than required by the permit, it still must be included in any calculations of load, etc.

3.5.1 MS4 Annual Reports

MS4 Annual Reports are also due each year on the anniversary of the effective date of the Permit. These reports provide a summary of Stormwater Management Program (SWMP) implementation and monitoring results from the previous year. DOEE must also post the Annual Report to the DOEE website at the same time as it is submitted to EPA, and convene a meeting with EPA to present annual progress and plans for the following year. The meeting will establish the appropriateness of reporting materials and format

Any revision to the Annual Report must be approved by EPA. If EPA does not approve any part of the report, DOEE will have 30 days to address comments. EPA may address comments themselves if DOEE does not do so in a satisfactory manner (or within 30 days of receiving comments from EPA).

Additional items to be reported in the annual report are listed in section 6.2.1 of the MS4 Permit.

3.5.2 Record Retention

DOEE must retain records of all monitoring information (including all calibration and maintenance records, recordings from continuous monitoring equipment) for at least five years from the date of the sample, measurement, or report. These records shall include:

- The date, exact location, time and methods of sampling or measurements
- The individual(s) who performed the sampling or measurements
- The date(s) analyses were performed
- The individual(s) who performed the analyses
- The analytical techniques or methods used
- The results of such analyses

3.6 Implications of Non-Detected Parameters

A large percentage of wet weather monitoring samples for certain pollutants resulted in non-detects (NDs), meaning that the concentration in stormwater samples was below that of the detection limit (DL; the lowest level at which a concentration can be detected in the laboratory). For all available wet

weather data between 2001 and 2013, 9 of the 21 measured parameters for which TMDLs exist in the District had a 90% or higher percentage of NDs. An additional three parameters had non-detect rates of approximately two-thirds of all samples collected (Table 3-5) or greater. This is an important issue to consider because assembling a dataset with a high percentage of NDs for certain parameters is not cost effective, and the data have the potential to skew analysis and interpretation of data for future management. However, before eliminating such pollutants from future analysis, it is also important to consider whether the analytical method and corresponding DL is appropriate for DOEE's needs. A comparison of analytical methods and DLs/Reporting Levels (RLs; the lowest reported level of concentration) used over the past several years with current DC water quality criteria (WQC) revealed that in some cases the DLs were higher than at least one water quality criteria. For example, the DDT isomers (DDD, DDE, and DDT) have two WQC, based on a 4-day and 1-hour average concentration. The 4-day WQC for all isomers (0.001 ug/l) are lower than both the DL and RL (0.10 ug/l), but the 1-hour WQC are not (Table 3-5). Thus there is a concern that inappropriate analytical methods have prevented accurate evaluations of pollutant concentrations against WQC (it is possible for a pollutant concentration that registers as an ND to still be above the WQC). This has implications for future management decisions and practices to protect receiving water quality, such as if WLAs for TMDLs are being met.

Table 3-5. Non-detect rates, detection levels, and analytical methods for DC wet weather outfall monitoring*

Parameter	Units	N	% NDs	WQC	DL/RL	Method
TSS	mg/l	198	3%		/1.0	SM(20) 2540D
TN	mg/l	200	9%		0.025/1.0	SM (20) 4500
TP	mg/l	203	0%		0.0017/.010	365.1
Fecal Coliform Bacteria	MPN/100ml	121	1%	200	20/20	SM(20) 9221E
E. coli	MPN/100ml	29	3%	126/410	2.0/2.0	SM(20) 9221F
BOD	mg/l	185	7%		2.0/2.0	SM(20)5120(B)
Oil and Grease	mg/l	156	66%	10	1/5	1664A
Arsenic	ug/l	162	67%	150/340	0.61/2.0	200.8
Cadmium	ug/l	229	73%	Hardness-dependent	0.22/0.50	200.8
Copper	ug/l	212	3%	Hardness-dependent	0.24/1.0	200.8
Lead	ug/l	205	5%	Hardness-dependent	0.24/1.0	200.8
Mercury	ug/l	137	95%	0.77/1.4	0.027/0.20	245.1
Zinc	ug/l	220	3%	Hardness-dependent	1.1/5.0	200.8

Table 3-5. Non-detect rates, detection levels, and analytical methods for DC wet weather outfall monitoring*						
Parameter	**Units**	**N**	**% NDs**	**WQC**	**DL/RL**	**Method**
Chlordane	ug/l	134	99%	0.0043/2.4	0.10/0.10	608
DDD	ug/l	133	99%	0.001/1.1	0.10/0.10	608
DDE	ug/l	134	96%	0.001/1.1	0.10/0.10	608
DDT	ug/l	133	92%	0.001/1.1	0.10/0.10	608
Dieldrin	ug/l	135	96%	0.056/0.24	0.10/0.10	608
Heptachlor Epoxide	ug/l	133	99%	0.0038/0.52	0.10/0.10	608
PAHs	ug/l	2883	96%	50-800	0.95-3.8/5.0	625
Total PCBs**	ug/l	90	100%	0.014	0.10/0.10	608

*DLs and RLs and analytical methods are from 2011 wet weather results (Microbac Laboratories, Baltimore, MD). %NDs and n are from the entire record of wet weather data, 2001-2013. WQC reported are for Class C waters only (fishable/swimmable). If a specific water quality criterion is missing from the table it is because it either does not exist (blank) or it is hardness-dependent and thus, varies, as indicated on the table. Standards for metals are in the dissolved form. E. Coli replaced fecal coliform as the EPA-recommended bacteria indicator starting in 2008, however E. Coli was not analyzed in wet weather samples until 2013.

**Analysis was performed only on those samples with results reported for Total PCBs. Individual PCB congener and Aroclors were reported for some events and sites, and were detected in some cases, but it was inconsistent across years.

As stated above, due to a variety of issues, monitoring of parameters that have had high non-detect rates in the past is not recommended for the Revised Monitoring Program. Instead, DOEE may monitor for these parameters under special studies, but only if a more sensitive analytical method and DLs are chosen than what has been used previously in order to ensure the ability to compare against WQC.

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4 Receiving Water Monitoring

4.1 Introduction

DOEE has been conducting receiving water monitoring in the District for over a decade to meet CWA Section 305(b) and 303(d)-related requirements. The current MS4 permit requirements, however, directs DOEE to evaluate the health of the District's receiving waters in an effort to meet the permit's overarching goal of evaluating the effectiveness of the MS4 program (See Section 2 for additional discussion). Biological and physical metrics were also added as monitoring requirements in the most recent MS4 permit as they have been shown to be better indicators (compared to chemical monitoring in receiving waters) of the effectiveness of stormwater controls (EPA 2011). The receiving water monitoring component of the Revised Monitoring Program has been designed to not only satisfy the MS4 permit requirements, but also to utilize existing monitoring efforts and identify efficiencies between monitoring efforts where possible.

A discussion of the existing receiving water monitoring, the monitoring framework, the study design, and sampling and assessment protocols are discussed below.

4.2 Existing Receiving Water Monitoring

While receiving water monitoring has not previously been required under the MS4 program, DOEE currently implements monitoring in association with non-MS4 related programs that includes collecting ambient water quality, fish, and macroinvertebrate samples and conducting physical habitat assessments. Monitoring sites are located throughout the District and monitoring is conducted on a number of different schedules for addressing program objectives outside the MS4 permit. These objectives include evaluating water quality trends, tracking progress toward meeting the aquatic life designated use, and monitoring real time water quality.

Receiving water monitoring is also performed in association with various District restoration activities. For instance, DOEE implements pre- and post-implementation water quality, biological, flow, and geomorphological monitoring of select projects, such as stream restoration or intensive watershed retrofitting efforts.

4.3 Monitoring Framework

As conveyed in Figure 4-1, the receiving water monitoring framework of the Revised Monitoring Program consists of three tiers: 1) rapid assessment, 2) status and trends monitoring, and 3) targeted monitoring. Within this framework several indicies have been incorporated including:

- Benthic macroinvertebrates
- Geomorphological assessments
- Habitat assessments
- Receiving water quality

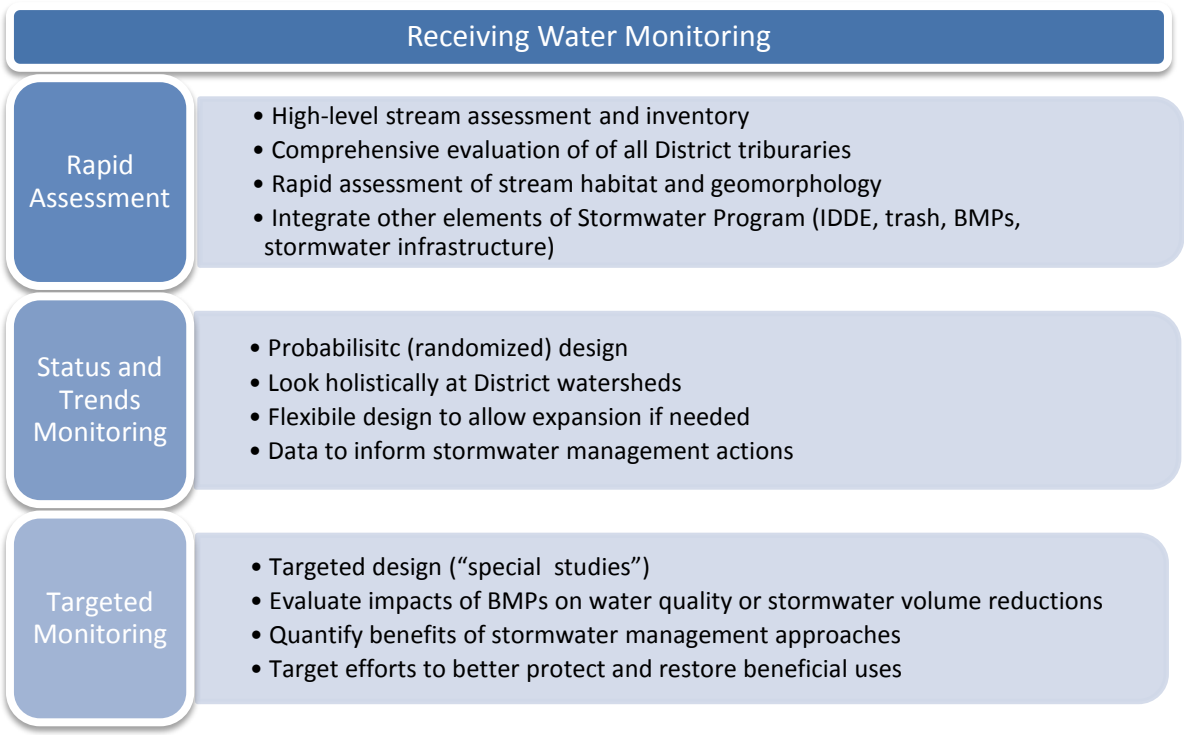

Figure 4-1. Program tiers of the receiving water monitoring competent of the Revised Monitoring Program

4.3.1 Rapid Assessment

The first tier, **Rapid Assessment**, includes a high-level stream assessment and inventory that will be conducted in the first year of the permit cycle. This will include DOEE walking all wadeable (i.e., first through fourth order tributaries, not mainstem reaches) stream reaches within the District to conduct a comprehensive, baseline analysis of these streams. Habitat (using the MBSS methodology) and geomorphological (Rosgen Level 1 classification) assessments will be conducted during the stream walks. Additionally, DOEE will evaluate other environmental features along the stream reach, such as infrastructure (i.e., stormwater and wastewater pipes and outfalls) and other elements, such as dump sites and stream buffer deficiencies. Hand-held GPS equipment will be used during these stream walks to facilitate rapid and accurate data collection. The purpose of this data collection effort will be two-fold: 1) to develop a baseline by which to compare changes or trends over time and 2) to identify issues (i.e., potential restoration projects, dump sites, or other problem areas) that DOEE can work to address through the remainder of the permit cycle.

4.3.2 Status and Trends Monitoring

The second tier, **Status and Trends** monitoring, includes the routine water quality and macroinvertebrate monitoring at randomized sites by ecoregion and stream order. "Status" monitoring includes the assessment of current conditions, while "trend" monitoring is performed to evaluate changes at sites over time (i.e., a permit cycle or longer). The status of receiving waters can be analyzed annually, while trends will require an appropriate amount of time to accurately detect changes. As found in other similar studies, "trends require sufficient sampling to determine significant changes from

natural variability, but also require the system has sufficient time to respond to actions or lack of action. More sampling does not necessarily mean a quicker detection of trends" (PSSW 2010).

Evaluating receiving waters in relation to the MS4 is challenging due to the number of other inputs that may confound our understanding the impacts to these waters (see discussion in Section 7, the *Quality of the Stormwater Program*). While the randomized design of this tier can help DOEE make watershed comparisons in a statistically robust way, "the intent of the status and trends monitoring is not to identify every variable or establish the loading or variability of each parameter…", but "…to produce sufficient information to inform stormwater management actions and to determine over time whether these actions are improving the beneficial uses of receiving waters" (PSSW 2010).

4.3.3 Targeted Monitoring

The third tier, **Targeted Monitoring**, includes focused monitoring efforts that are used to evaluate whether best management practices or stormwater management efforts achieve water quality improvements or stormwater volume reductions. These "special studies" will be implemented for several different purposes. For instance, DOEE may identify a drainage area where extensive retrofits are planned. Monitoring efforts could be implemented in the area to assess pre- and post- pollutant and/or stormwater volume discharges and, subsequently, to evaluate the effectiveness of these efforts. Additionally, existing DOEE monitoring of restoration activities could be extended or modified to collect additional data to help determine trends and effectiveness.

4.4 Study Design

The design of the receiving water monitoring component of the Revised Monitoring Program includes site selection, the use of reference streams, and sampling timing and frequency and reflects, where possible, the approach established by the Maryland Department of Natural Resources (MDNR) Maryland Biological Stream Survey (MBSS) (MDNR 2014). MBSS protocols have been incorporated to this study as they are robust, locally used, and frequently updated and have been used by DOEE in the past. It should be noted that specific details discussed in this study design should be considered preliminary and will be finalized upon feedback from the public and/or EPA during this document's public comment period, desktop analysis and field visits (e.g., site accessibility issues, etc.), and incorporation of wider DOEE data needs (i.e., selecting a site that may provide data for more than one DOEE program, collecting additional water quality parameters, etc.).

4.4.1 Site Selection

The site selection process was largely based on the approach described in the MBSS study design. One difference from the MBSS approach is that watershed drainage area was not used in the DOEE approach because of the relatively small size of the District. While land use was considered initially in the site selection process, it was eventually deemed unnecessary. This is because the land use in each subwatershed in the District is, in general, homogeneous, and thus, difficult to correlate receiving water quality with a specific land use. Site selection is focused on two particular variables: stream order and eco-region. A random sampling of tributary stream segments stratified by stream order (stream order

one through four) was used (Mercurio, et. al. 1999). Mainstem streams were not included in the analysis.

The focus on lower order streams is consistent with the need to conduct macroinvertebrate monitoring in wadeable streams. Because there are few fourth-order stream reaches in District tributaries, only one site within this stream order was selected, compared with four sites selected within in each of the first through third order stream reaches.

The DOEE study design also used ecoregion (Coastal Plain and Eastern Piedmont) to stratify the site selection process. This is consistent with the MBSS study design because there are separate indices for each ecoregion. For instance, two separate MBSS Physical Habitat Indices were developed for two geographic strata: Coastal Plain and non-Coastal Plain (Mercurio, et. al. 1999). Benthic macroinvertebrate IBI metrics were developed by ecoregion in 2005 (Southerland, et. al. 2005)

An initial group of 52 potential sites were selected using a randomized sampling approach that ensured spatial balance within a stratum. This group of 52 sites was randomly divided into two groups or 26 sites: selected sites and "over-sample" sites. The latter group of sites will be used in cases where the original site is not suitable due to access or other issues (safety, tidal influence, etc.). All perennial streams within the District were classified into one of seven possible strata:

- First-order streams in Eastern Piedmont
- Second-order streams in Eastern Piedmont
- Third-order streams in Eastern Piedmont
- Fourth-order streams in Eastern Piedmont
- First-order streams in Coastal Plains
- Second-order streams in Coastal Plains
- Third-order streams in Coastal Plains

4.4.2 Reference Streams

Reference streams represent streams that have been minimally influenced by anthropogenic disturbance. The reference conditions in reference streams reflect the potential quality of biological communities in various stream settings. The use of reference streams is an important component to the development of meaningful criteria to assess

Use of Reference Streams

In reference streams "temporal trends in ecological condition should be attributable primarily to seasonal and annual variations in precipitation (and resultant droughts or floods) and temperature/dissolved oxygen regimes, as well as biotic interactions. Stress caused by these natural changes can have drastic effects on stream biota (e.g., benthic macroinvertebrates and fish), effects that should be detected by the biological indicators and ancillary chemical/physical measurements taken...

Therefore, monitoring a set of minimally-disturbed (more ideally, pristine) streams in places not likely to experience anthropogenic impacts offers the best means of discerning changes in biological indicator scores across years at stream sites sampled along the entire gradient of disturbance that are also being influenced by natural variability."

MDNR 2010

stream conditions. Degradation is evaluated as a deviation from reference conditions.

There are no appropriate reference steams in the District because it is highly urbanized. While "pristine" streams also no longer exist within Maryland, a number of the remaining streams have been designated as meeting reference site requirements in the MBSS program (Becker et. al. 2010). Because the Revised Monitoring Program's receiving water monitoring efforts will rely upon MBSS protocols, DOEE will assess its receiving waters in comparison to several MBSS reference sites in Maryland from the Eastern Piedmont Region and the Western Shore Region of the Coastal Plain.

4.4.3 Sample Timing and Frequency

The frequency by which monitoring occurs varies by indicator (e.g., macroinvertebrates, water quality, etc.). For instance, the MBSS protocol requires a seasonal 'index period' over either spring or summer months.

The spring index period (March 1 through April 30) is most suitable for identification of anthropogenic stressors to benthic macroinvertebrates due to temperature and acidification of streams (MDNR 2014). Some habitat metrics are also most appropriate for this time period (see Table 4-2). The summer index period (June 1 through September 30) was chosen for the remaining habitat and geomorphological assessments because the low flow period for area streams occurs during the summer months, meaning that habitat is most limited and assessments will evaluate "worst-case" scenarios for instream habitat for fish and other organisms. In addition, stream level and temperature are more conducive for wading at this time of year.

Sampling frequencies for the indices are as follows:

- Benthic macroinvertebrates – once a year
- Water quality sampling – once a month, though frequency may vary by parameter as needed
- Physical habitat and geomorphological monitoring – once a year in first year of permit cycle, and as needed in association with targeted monitoring

As discussed further in Appendix 4, DOEE conducted a statistical analysis of existing District receiving water data. Given the variability of these receiving water data, statistically significant *trends* are difficult to achieve in a permit cycle despite increased sampling frequency. As shown through similar studies, such as a five-year USGS study of streams in Fairfax County, Virginia (Jastram 2014), determining *patterns* in data may be more feasible.

4.5 Sampling Protocols and Equipment

Field sampling methods and equipment will vary between different elements of the receiving water monitoring program, which are detailed in the following sections. There are a number of items that are common to multiple monitoring program elements including:

- All sampling and data collection protocols have associated field data sheets, quality assurance/quality control (QA/QC) procedures, and chain of custody forms (where appropriate). Where appropriate, data collection may be recorded digitally, as long as there is redundancy in

place (e.g., data is digital and printed off on hard copy). All data will be stored in a central geodatabase that can store locational information as well as data sets. See Section 8, Data Management for additional discussion.

- While sample collection chain-of-custody forms will be specific to the sample type being collected, all forms must be filled out completely and legibly.
- Sample labeling will be waterproof and legible to laboratory staff.
- Photographs will be taken at each site at the time each sample is collected or assessment is conducted. There will be at least one photo of the stream looking upstream and one looking downstream.
- Current and recent (past 24 hours) weather will be recorded for each sampling or assessment activity.
- The stream will not be disturbed upstream of sampling/assessment activities.
- Unless otherwise noted, all monitoring activities will be conducted within the same 75 meter stream reach per site.

Unless otherwise noted, assessment protocols will adhere to those established by the Maryland Biological Stream Survey (MBSS).

4.5.1 Water Quality Sampling

Water quality sampling will be performed according to the QAPP that will be developed in association with this program. Water quality parameters proposed in Table 4-1 are those that are collected in association with the MBSS program and represent parameters that will be most effective in helping DOEE to evaluate the health of the District's receiving waters within the MS4.

Table 4-1. Parameters to be Analyzed for Receiving Water Monitoring	
pH	Total phosphorus
Acid neutralizing capacity	Chloride
Sulfate	Specific conductance
Nitrite (as nitrogen)	Dissolved organic carbon
Nitrate (as nitrogen)	Hardness
Ammonia	Copper
Total nitrogen	Zinc
Orthophosphate	

4.5.2 Benthic Macroinvertebrate Sampling

Benthic macroinvertebrate samples can only be collected if the site is wadeable, is not too turbid to see the associated habitat, does not feature any nearby impoundments, and is not tidally-influenced. Within the stream reach, sampling will be conducted at a combination of macroinvertebrate-supporting habitats. These habitats may include riffles, root wads, woody debris, leaf pack, and undercut banks.

Benthic macroinvertebrate sampling buckets must be labeled on the exterior and interior (e.g., waterproof paper with site information written with waterproof ink) with date, time, and a site ID. Each sample bucket will include material from a 20 square-foot area per site. Habitats will be sampled in relative proportion to each available habitat at the site. The MBSS collection method is as follows:

1. Begin at the downstream edge of the habitat and place the collection net (e.g., D-net) in the substrate. Hand-rub large sticks and stones within the net's one square-foot area to dislodge organisms. Disturb the substrate down to 5-8 cm below the surface. Repeat rubbing of disturbed sticks and stones. Repeat entire process near the upstream edge of the habitat, and again as necessary within the 20 square-foot area. For log and snag substrates, position the net downstream and rub substrate by hand or with a brush. Use the net in a sweeping or jabbing motion to dislodge organisms from root wads, submerged macrophytes, or other habitats.
2. The sampling is completed when the requisite 20 square-foot area has been sampled, or when the net becomes filled so that water doesn't easily pass through. Wash the net into a partially-submerged sieve bucket, and inspect for organisms then remove and discard large pieces of debris, stones, and leaves. Remove any vertebrates as well. Agitate and rotate the sieve bucket to remove fine sediments. Thoroughly rinse the net in stream water to prepare it for the next sample.
3. Composite samples will be transferred from the sieve bucket to the sample bucket and preserved in 95% ethanol. After applying an internal label and placing a tight-fitting lid on the bucket, gently mix the sample and the preservative.
4. Samples are kept for five years, and then discarded. Subsamples are archived in perpetuity.

In addition to the collection of new data, it will be important to ensure that any past data that has been collected by DOEE, yet not yet analyzed, is done so within the first permit year to ensure DOEE has the most complete data set possible. DOEE will also evaluate other biological data sets that have been collected by other entities (e.g., National Park Service) to determine its value in supplementing DOEE's data and information.

4.5.3 Geomorphological Assessments

A high-level geomorphological assessment will be conducted as part of the rapid-assessment stream walks that will also assess habitat and infrastructure concurrently. Geomorphological assessments will help determine whether a stream is connected to its floodplain, whether channel alteration has occurred, and whether the stream is capable of conveying flow and sediment efficiently and safely.

The geomorphological assessment will use a Rosgen Level I classification system that groups streams by class based on slope, amount of entrenchment, ration of width to depth, and sinuosity (Figure 4-2) (Rosgen 1994). This rapid assessment and classification of stream channels replaces the more labor and time-intensive comprehensive MBSS assessment method, which also requires a long list of equipment. The assessment can also use the same data collection and storage device that is used for the habitat assessment and infrastructure inventory.

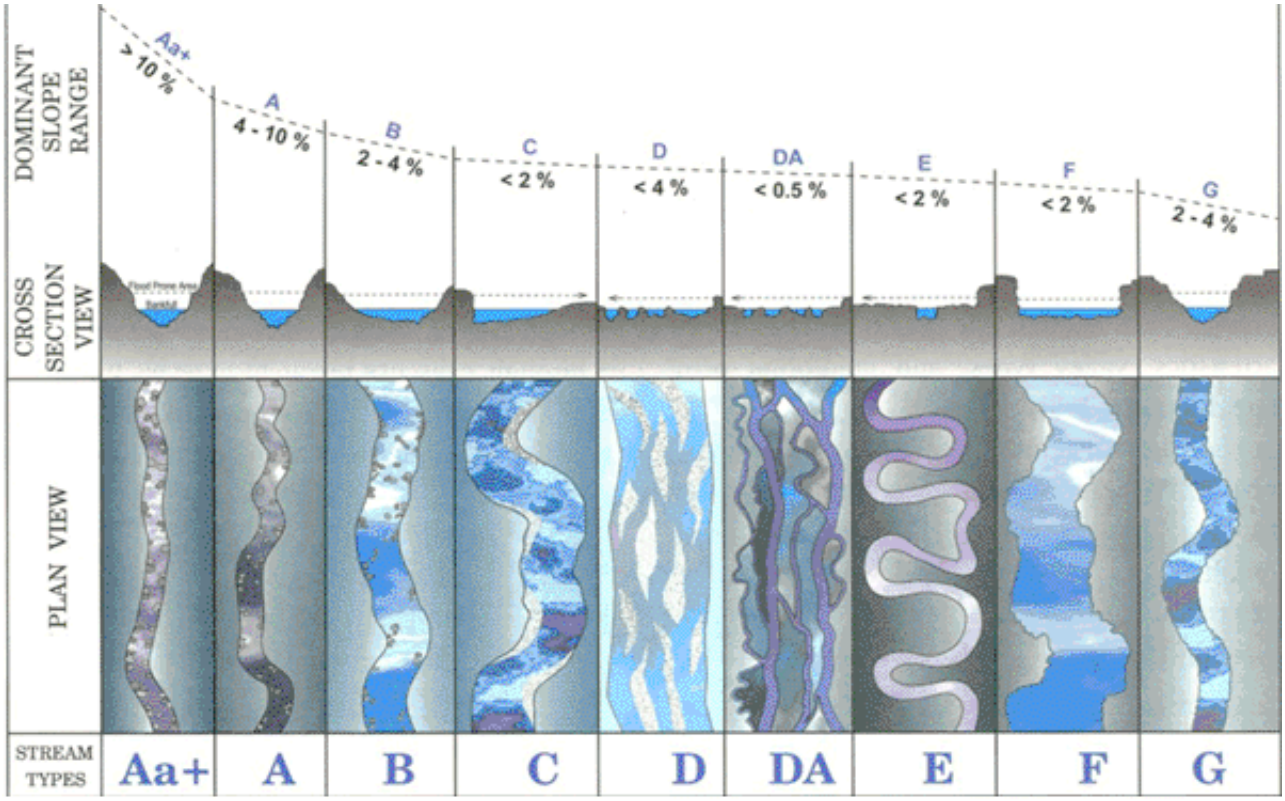

Figure 4-2. Representation of Rosgen Level 1 Classifications of Major Stream Types

4.5.4 Habitat Assessments

The MBSS physical habitat assessment protocol is adapted from a combination of EPA's Rapid Bioassessment Protocol (RBP) and Ohio EPA's Qualitative Habitat Evaluation Index (QHEI). The MBSS protocol recommends that several habitat metrics be collected during the spring index period, while the remaining are collected during the summer index period (Table 4-2). Habitat assessment parameters associated with the spring index period will be evaluated in association with the collection of macroinvertebrates. Parameters associate with both the spring and summer index periods will be collected during the rapid assessment (stream walk) that will be performed during this summer period.

Table 4-2. Habitat Assessment Parameters (MDNR 2014)	
Parameter	**Description**
Trash rating*	Assessed on a 0-20 scale, with 20 representing a trash-free site.
Remoteness*	Distance to the nearest road, estimated to the nearest 10m.
Riparian buffer width*	Average width of the buffer on each side of the stream, to the nearest meter.
Adjacent land cover*	Land cover type adjacent to the stream buffer, from a code-based list.
Riparian vegetation*	Dominant vegetation types, from a code-based list.
Buffer breaks*	If breaks are present anywhere on the 75m reach, "Yes".
Buffer break type*	Severity of a buffer break, if it exists, recorded as minor or severe.
Channelization*	Evidence of channel straightening or dredging, length is measured along the stream reach.
Land use*	Indication of whether each land use type is present within the stream reach.
Stream gradient*	Measurement/estimate of the stream slope over the 75m reach.
Embeddedness	The ratio of coarse to fine riffle substrate.
Shading	Estimate of percent shading due to overhanging vegetation for the wetted portion of the reach.
Woody debris	Count of in-stream large woody debris at least 10cm in diameter.
Root wads	Count of in-stream live tree root wads at least 16cm in diameter.
Stream character	Evaluation of whether any of 15 stream features are absent, present, or extensive within the reach.
Maximum depth	Maximum depth within the reach, estimated or recorded to the nearest cm.
Wetted width, thalweg depth, thalweg velocity	All three parameters are measured at four transects within the reach; 0, 25, 50, and 75m. Wetted width is measured from bank to bank, thalweg depth is the maximum depth at each transect, and thalweg velocity is the velocity at the deepest part of each transect.
Flow	Depth and meter-based velocity measurements used to determine stream flow; a minimum of ten sets of measurements and a maximum of 25 will be recorded.
Bank Erosion	Quantification of erosion (length and average height) along each bank, including erosion severity.
Bar formation and substrate	Determination of whether bar formation is absent, minor, moderate, or extensive. Dominant particle types that form the bar will also be recorded.
Bank stability	Scoring of bank stability, on a 0-20 scale.

* MBSS recommended for Spring Index Period

4.5.5 Other Environmental Features

The stream walk conducted in association with the rapid stream assessment effort provides the opportunity to collect a wide variety of data and information. In addition to habitat and the rapid geomorphological assessment, a number of other features will also be assessed including items such as:

- Utilities – the type pipe or outfall (e.g., sanitary, stormwater) and the potential impact to the stream based on current condition

- Obstructions - any material, natural or manmade, obstructing the stream channel and perceived the impact
- Erosion points – impacts within or along the stream channel, such as head cuts or bank erosion
- Dumpsites – locations where dumping of trash or disposal of liquid or solid materials are occurring
- Crossings – locations along the stream channel where flow is being impacted due to a structure (e.g., bridge) or modification of the stream channel (e.g., berm) that allows crossing
- Buffer deficiencies – areas along the stream where the stream's vegetative buffer has been removed and has been replaced with other materials, such as lawn, a parking lot, etc.

In addition to gathering these data for analysis associated with the quality of receiving waters, pertinent information associated with these features will also be collected and provided to the appropriate DOEE Division or Branch as needed for follow-up. For instance, the identification of an illicit discharge would result in reporting it to the WQD's Inspection and Enforcement Branch. Similarly, the identification of a leaking sanitary sewer pipe next to a stream would result in reporting it to DC Water. This will help ensure necessary follow-up occurs and issues identified during this stream walk are efficiently addressed.

4.5.6 Fish Sampling

Fish sampling to assess population (abundance and diversity of species) is a resource-intensive task that requires extensive training and strict adherence to safety protocols. Urban stream reaches may also have little or no fish presence due to low flows or blockages in stream reaches. Many of the District's smaller, wadeable streams have few fishes, with relatively low species diversity, and pollution tolerant species, due to low stream flows, blockages to fish passage, and "flashiness" of flows during storm events. Therefore, mobilization for fish sampling has not been deemed a prudent allocation of resources that will be informative to the MS4 program.

Stream walks, discussed below, will include evaluation of fish presence/absence, but no further details. These findings will be used to determine if fish sampling may be appropriate in a certain reach. For the purposes of evaluating the effectiveness of the MS4 program, fish monitoring is not necessary, but considered to be supplemental to the program if the determination is made it should be collected in a particular reach.

If collected, qualitative or quantitative MBSS fish sampling protocols and methods will be used (MDNR 2014), as appropriate per observations made during stream walks, and monitoring will occur in the summer index period (June 1 to September 30).

4.5.7 Data Management and Reporting

All data collected through the Revised Monitoring Program receiving water monitoring efforts will be maintained in a central geodatabase that can store locational information as well as data sets. Metadata for all data sets will be recorded.

DOEE will review monitoring data on an annual basis and report these findings within the MS4 Annual Report. The fourth year of the permit cycle will also involve a comprehensive review of monitoring data within the context of the evaluation of the Quality of the Stormwater Program, as discussed further in Section 7. Additional discussion on Data Management is included in Section 8.

4.5.8 Adaptive Management

Adaptive management within the context of monitoring natural resources acknowledges the uncertainty about how ecological systems function and how they respond to management actions. The results of the monitoring program will support decision-making, reducing uncertainty, and improving the effectiveness of the program through time (Atkinson et. al. 2004).

Adaptive management will influence each tier of this monitoring framework differently. Rapid assessment monitoring will gather data and information on a high level across the District. These data may then be used to influence DOEE's focus on issues that have been identified through this effort (i.e., trash dump sites, severely eroded stream banks, etc.) and then adapt existing management and/or monitoring efforts to address these issues.

Status and trend monitoring efforts will gather data to help DOEE determine if receiving water conditions are changing over time as the result of MS4 program implementation. This information will be used to inform DOEE's future stormwater and TMDL implementation-related activities or the need for additional data and information that may require additional or modified monitoring efforts. While the detection of statistically significant trends may not be feasible within a single permit cycle, patterns seen at receiving water monitoring sites may help inform DOEE of potential areas of focus in subsequent monitoring cycles.

Special studies may be used to investigate the performance of individual BMPs or groups of BMPs at the neighborhood or watershed scale. The data and information gathered through special studies will help inform DOEE of the effectiveness of specific programs/practices or the need to gather more extensive data to determine watershed-scale changes.

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5 Dry Weather Screening & Source Identification

5.1 Introduction

Studies have found that dry-weather flows from MS4s can contribute significant pollution to receiving waterbodies, and thus are an important component of stormwater monitoring programs (e.g., CWP & Pitt 2004; Pitt and McLean 1986; McLean 1987). DOEE's Revised Monitoring Program includes dry weather screening and source identification activities to allow DOEE to more fully understand the sources of pollutants and associated stressors on the MS4 system and its receiving waters. These activities allow DOEE to determine:

- Where and at what frequency dry weather flows exist,
- If they are allowable or illicit (per Section 1.2 of the MS4 permit),
- What their resulting environmental impact is, and
- What actions DOEE may take to address these discharges (e.g., require a permit for a newly discovered discharge, initiate enforcement action, etc.).

A targeted approach to identify where dry weather discharges are occurring and to investigate potential dry weather pollution sources through screening, mapping and inventorying, visual monitoring, outfall inspections, desktop analysis, follow-up monitoring, and tracking and reporting is described in the following sub-sections.

5.1.1 Dry Weather Screening

Section 5.3 of the MS4 permit describes the dry weather screening program which compels DOEE to "detect the presence of illicit connections and improper discharges to the MS4." DOEE's current dry weather screening program includes an evaluation of all known or documented outfalls within the District's MS4 area at least once by the end of the permit cycle to identify potential illicit discharges, connections, and unauthorized non-storm water flows. Targeted or "problem" areas identified through past screening efforts will be visited several times for follow up. Target areas will be prioritized over others for the first year of inspections. The sections below build on these efforts and provide additional strategies to meet MS4 permit requirements. The procedures are also summarized in Figure 5-1.

5.1.2 Mapping and Outfall Inventory

DOEE will update its current inventory of all of the outfalls in the MS4 area in order to confirm its comprehensive understanding of the storm sewer system. This database (to be developed using Microsoft Access and integrated with GIS) will include size, type, location (GPS coordinates), condition (e.g., if it is cracked), receiving water, date of last inspection, and information pertaining to the facilities that discharge to each outfall (including name, address, and description of the facility using an SIC or similar code) for each outfall. DOEE will use this information to develop updated maps of outfalls and

sewersheds for use in the field conducting outfall inspections and for subsequent desktop analysis of any discharges.

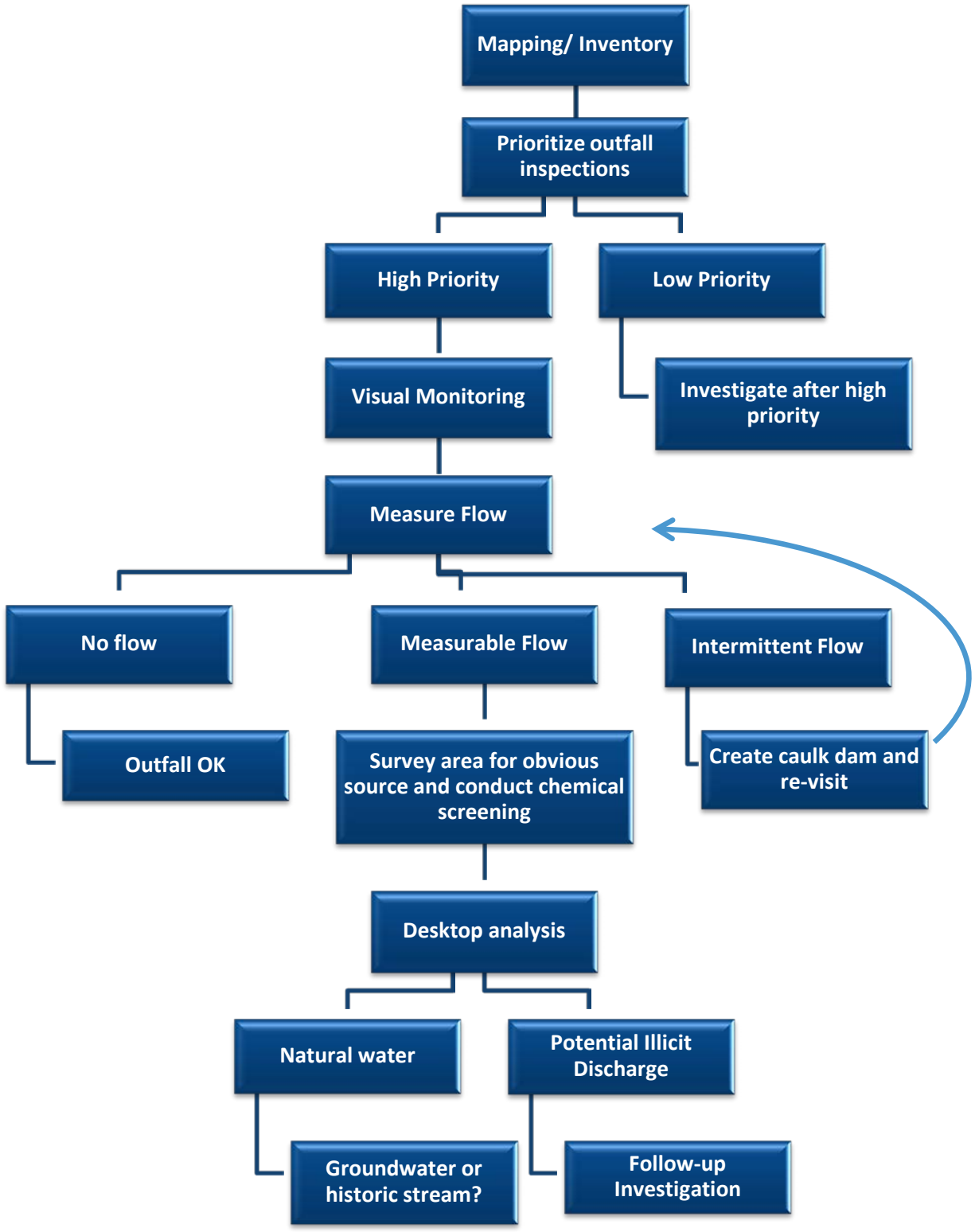

Figure 5-1. Procedures to be used for dry weather screening of outfalls in the MS4 area

5.2 Visual Monitoring

Visual monitoring is the first step in the field portion of dry weather inspections and screening. Field crews will collect and organize information for each outfall using DOEE's Dry Weather Outfall Inspection Form (Appendix 5). This includes basic information such as the outfall ID and location as well as physical characteristics, such as the presence of odor, oily sheen, turbid discharge, and floatables. Photos will be taken, and linked to the outfall database, along with the inspection forms, and any notes regarding change in condition since the last inspection. The ideal conditions for conducting visual monitoring are characterized by:

- Low groundwater, i.e., not when ground is saturated from snowmelt or recent rainfall
- No runoff-producing rainfall within 48-72 hours (CWP and Pitt 2004)

5.3 Flow Monitoring

DOEE must estimate the frequency and volume of dry weather discharges and their environmental impact to comply with MS4 permit section 5.5. Field crews conducting regular dry weather outfall inspections will make note of the presence or absence of dry weather flow, and will also estimate and record dry weather flow at any outfall where it is present and measurable.

There are two simple methods that will be used to estimate volume if measurable flow is observed during dry weather at any outfall:

1. Record the time it takes to fill a container of known volume such as a one liter sample bottle
2. Measure the velocity of flow (using a velocity meter, or any floatable material) and multiply that by the estimated cross sectional area of the flow (CWP and Pitt 2004)

Quantification of a volume such as liters per day or gallons per day can be estimated using either simple method.

After measuring the flow and estimating volume, if the source of flow is not immediately identifiable, field staff will attempt to locate the source of flow by following the storm drain line "upstream" to determine the source of the flow. This may include visually inspecting manholes along the trunk of the storm sewer until the source of the flow input is found, and subsequently investigating near-by areas draining to the storm sewer. Photos will also be taken of any relevant activity in the surrounding area that may provide information to discern the source(s) of discharge.

If there is no measurable flow, but there is evidence of intermittent discharge (e.g., staining, small trickle, algal growth), the outfall will be re-visited within three days to check for measurable flow. To assist with determining if flow exists even when not observed, a simple 1-2 inch high dam made of caulk or plumbers putty will be created in a cross section of the pipe. This temporary structure will hold any intermittent flow that can be documented and sampled during the follow up visit.

A tabulation of dry weather flow across the District will be compiled annually as outfalls have been visited to determine if there are certain areas where there is more frequent dry weather flow, and to note other observations that will help with prioritization of investigations for the next permit cycle.

5.4 In-Field Chemical Screening

The use of *in situ* chemical screening will help to identify and eliminate discharges to the MS4 occurring during dry weather that are not allowed under section 1.2 of the MS4 permit. If the source is not obvious from visual observations recorded during the outfall inventory or from previous visits to the outfall, a sample of any measureable dry weather discharge will be collected to help determine its source. Field staff will use a colorimeter (e.g., Hach DR 900 multiparameter handheld colorimeter) to analyze dry weather flow samples for five parameters: ammonia, surfactants, potassium, fluoride, and chlorine. A flow chart summarizing the parameters to be tested, and the concentrations that will help identify a range of dry weather flow sources, particularly in residential areas, is presented in Figure 5-2. In-field chemical screening is relatively inexpensive and uncomplicated. Results can be determined within the initial field visit.

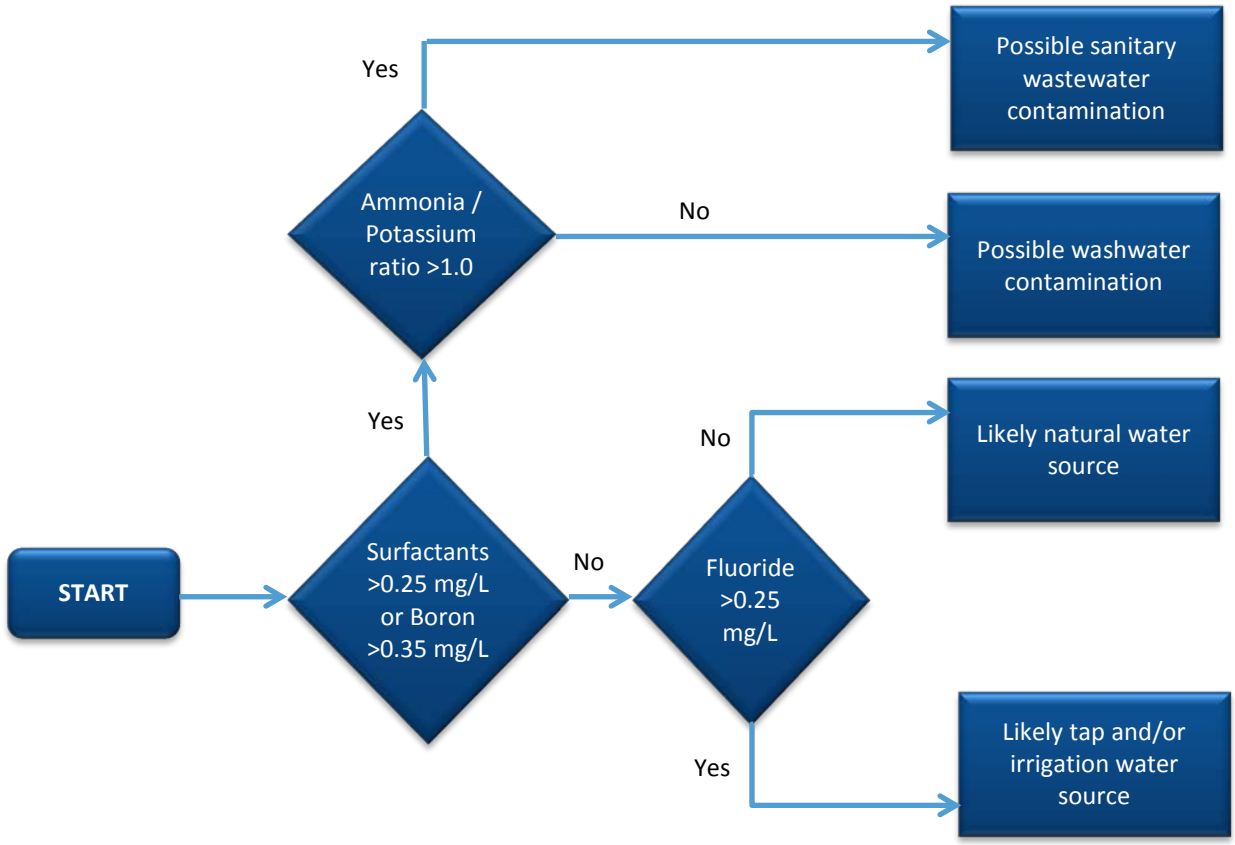

Figure 5-2. Flow Chart to Identify Sources of Dry Weather Flow in Residential Watersheds (CWP and Pitt 2004)

5.5 Desktop Analysis

The source or origin of dry weather flow must be identified if it is observed during the initial field visit. If it is not possible to identify the source of flow in the field using in-field chemical screening or other methods, a desktop analysis will be conducted to gain a general understanding of the area and identify potential sources of the discharges. The outfall inventory, along with other spatial data such as topography, aerial photos, storm and sanitary sewer infrastructure, and historic and current streams, will be used to identify the sewershed where the dry weather discharge occurred. Other outfalls in the

same sewershed with dry weather flow will be identified and analyzed in batches in case they have a common source or sources. The database of "critical sources" (discussed in more detail below) will be cross-referenced to track specific facilities that may be the source(s) of the discharge.

5.5.1 Source Inventory

DOEE maintains a source inventory of all industrial, commercial, institutional, municipal, and federal, and any other NPDES-permitted facilities within the MS4 area that has been identified as a potential source of pollution to stormwater ("critical sources"). Facilities listed within the following District Department of Consumer and Regulatory Affairs (DCRA) business license categories are currently designated critical sources:

- Ambulance
- Auto rental
- Auto wash
- Bulk fuel storage
- Charitable exempt
- Consumer goods
- Dry cleaners
- Gasoline dealer
- General contractor/construction manager
- General business license
- Home improvement contractor
- Kerosene
- Motor vehicle dealer
- Moving and storage
- Parking facilities
- Pesticide operator
- Pesticide public operator
- Solid waste collection
- Solvent sales
- Tow truck
- Used car lots

Additional categories to add to this list based on section 4.4.1 of the permit include: Auto service, fueling and salvage, industrial activities, and construction sites. Efforts will be made through desktop analysis and field investigations to identify additional sources not yet included in the Critical Sources Database.

This facility information will be used in conjunction with DOEE's spatial data, so that details about the facility, including owner/operator, facility size, and watershed, is stored and managed in the Critical Sources Database. This database will continue to be maintained and updated annually. Updates will be based on the collection of field data, information gathered from the DCRA business licensing database, and information received by the District's Department of General Services. The DCRA business license verification website (http://pivs.dcra.dc.gov//BBLV/Default.aspx) is a real-time database providing the most accurate account of businesses operating in the District.

Facilities located outside of the District's MS4 area will be removed from the downloaded DCRA database before being added to the Critical Sources Database. This will be accomplished by using basic database queries and GIS cross-referencing with a Master Address Repository to identify facilities located outside of the District and those located within the District's combined sewer system. Additional

validation will be conducted using aerial photography to identify facilities with outdoor operations and potential for contributing stormwater pollutants.

5.5.2 Follow Up Site Visits and Investigation

If the results of the desktop evaluation and/or information from the in-field chemical screening indicate that a dry weather discharge is not allowable, DOEE field staff will open an investigation and conduct a follow up site visit to identify the source. Follow up visits will be grouped by geographic area to conserve resources and to potentially address sources contributing to dry weather discharge in multiple outfalls. This element addresses Section 5.4 of the MS4 permit, which requires DOEE to "… identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters…"

Several techniques may be used to identify the source of illicit discharge including dye testing, video inspection, interview of facility owners/operators, review of facility documents, visual inspection of stains, inspections of manholes leading to the storm sewer, tracking illegal dumping, and additional water quality sampling.

5.5.3 Tracking and Reporting

The results of the dry weather screening and any relevant investigations or site visits will be summarized in the inventory database and analyzed to identify any spatial or temporal patterns that may assist DOEE staff in prioritizing sewersheds for additional regulatory, educational or structural pollution controls.

DOEE will report on the progress and accomplishments of the dry weather screening program in the MS4 Annual Report. This will include the following:

- Number of outfalls visited
- Any updates to field screening protocols and parameters
- Updates to the MS4 outfall inventory including any identification and/or verification of new MS4 outfalls or removal of outfalls
- Summary on the accomplishments of the program
    - Progress towards eliminating illicit discharges and illegal dumping
    - Enforcement efforts
- New/revisions to programs and policies

6 Trash Monitoring

Trash from dumping and littering has long been an issue in the Potomac River watershed and its tributaries, such as the Anacostia River. The concern for the health of the whole Potomac River watershed sparked the development of the Trash Free Potomac Watershed Initiative in 2005. The District is a partner in the associated Potomac River Watershed Trash Treaty that commits the District to support and implement trash reduction strategies and increase education and awareness of the issues associated with trash throughout the Potomac River watershed.

DOEE identified the Upper Anacostia River and Lower Anacostia River as impaired by trash in the 2006 and 2008 Water Quality Assessment (305(b) and 303(d)) Integrated Reports (District of Columbia Department of Health 2006 and District of Columbia Department of the Environment 2008, as documented in MDE and DOEE 2010). DOEE, in conjunction with the Anacostia Watershed Society (AWS), developed the *Anacostia Watershed Trash Reduction Plan* to conduct research, to develop a comprehensive framework to guide trash reduction efforts, and to serve as the initial implementation plan for addressing litter in the District's portion of the Anacostia watershed (AWS 2008). In 2010, a TMDL for the Anacostia River Watershed in Montgomery and Prince George's Counties in Maryland and the District of Columbia was finalized. While only the Anacostia River is addressed by the trash TMDL, the monitoring efforts used to develop the TMDL guided monitoring in the Rock Creek watershed and the remainder of the Potomac River watershed within the District

DOEE's MS4 permit requires DOEE to make wet weather loading estimates and any other necessary monitoring for the purposes of wasteload allocation tracking for trash.

6.1 Previous Trash Monitoring

DOEE initiated trash monitoring in the District's portion of the Anacostia watershed, along the mainstem and all tributaries of the Anacostia River in 2008. This effort (documented in AWS 2008) involved trash counts on linear transects taken along the river and its tributaries. Monitoring was also conducted in the watershed along streets within the MS4 area using linear transects and windshield surveys. This project served to determine the quantity and composition of trash present in the Anacostia watershed. Subsequent to that study, AWS conducted MS4 outfall monitoring to develop a baseline load for the TMDL (AWS 2010). Following completion of the TMDL, the Anacostia River Watershed Trash TMDL Implementation Strategy was developed (DOEE 2013b).

As part of Implementation Strategy, six of the sewersheds within the Anacostia River watershed were identified as "hotspots". "Hotspots" are defined as sewersheds determined to have greater than average annual trash loads, shown with a load above the red line in Figure 6-1 (DOEE 2013b).

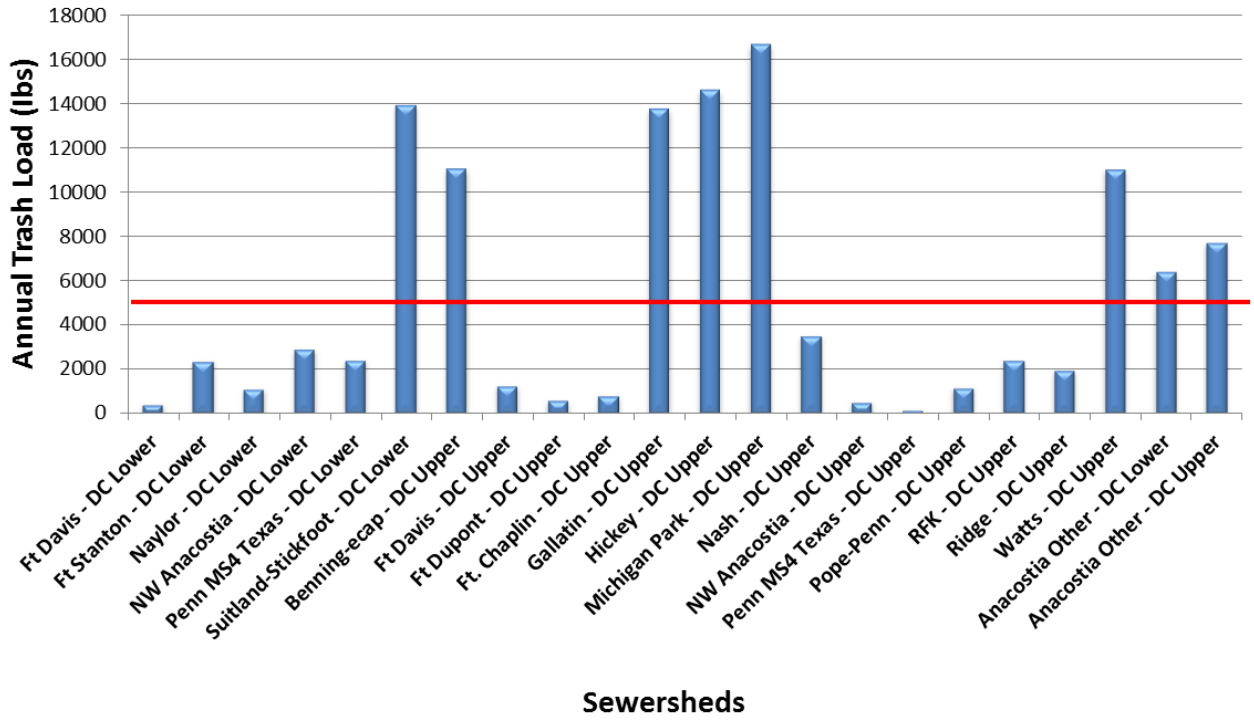

Figure 6-1. Estimated trash load for each sewershed in the District's portion of the Anacostia watershed. Six of the sewersheds have been identified as "hotspots" (DDOE 2013)

As discussed in the 2013 MS4 Annual Report, DOEE awarded a grant to the AWS in 2013 to conduct stormwater monitoring for trash at six outfalls throughout the District. Several of the stormwater monitoring stations identified in the MS4 permit were located at outfalls that were too large to allow for the trash monitoring methods that were utilized to develop the Anacostia River trash TMDL. Working with EPA Region 3, DOEE and AWS were able to identify three stormwater monitoring stations included in the original permit that were conducive to trash monitoring. These stations, along with the land use composition for their respective sewersheds, are:

- Walter Reed-Fort Stevens Drive (16th Street and Fort Stevens Road, N.W.) in the Rock Creek Watershed with a low, medium, and high density residential land use type;
- Battery Kemble Creek (49th and Hawthorne Streets, N.W.) in the Potomac Watershed with a low density residential land use type;
- Oxon Run (Mississippi Avenue and 15th Street, S.E.) in the Potomac Watershed with a medium density residential, institutional, commercial and open space land use type.

(DOEE 2013a)

An additional three locations located solely within the Anacostia River watershed were selected in collaboration with EPA Region 3 and AWS. These three locations were previously monitored during the development of the Anacostia Trash TMDL. These stations will provide data on other types of land use not addressed in the three stations above required by the MS4 permit. These stations are:

- McDonald's outfall (Minnesota Avenue NE and Nannie Helen Burroughs Ave NE) in the Anacostia Watershed with an industrial, commercial, and residential land use type;
- Benning Road (Benning Road NE and Anacostia Avenue NE) in the Anacostia Watershed with a commercial and industrial land use type;
- New York Avenue (New York Avenue NE and South Dakota Avenue NE) in the Anacostia Watershed with a transportation right-of-way land use type.

(DOEE 2013a)

6.2 Study Design

DOEE will continue to monitor MS4 outfalls to quantify the amount of trash being discharged from outfalls in each of the major watersheds within the District. While the Quality Assurance Project Plan and Monitoring Plan (AWS 2013) was developed to provide detail associated with this trash monitoring effort, each of the elements of the monitoring program is summarized here.

Six sites will continue to be monitored through the beginning of 2015. However, DOEE evaluated the need for modification of monitoring at the Oxon Run and Benning Road and identified a number of limitations at both. For instance, the drainage area for the Oxon Run outfall is relatively large and high flows damaged several of the trash traps built and installed at the site. DOEE found that the trash traps shouldn't be deployed when storms with greater than 1.5" of rainfall are expected. This limitation narrows the window of available storms that can be sampled at this site. Similarly, the Benning Road site lies right along the river. Once traps are installed there they are prone to damage by large floating debris and ice during the winter. DOEE lost several traps at this site and learned that it must be careful as to when it can deploy traps at this site. While DOEE will continue to collect data at these sites, it will discuss the proposal of alternative sites with EPA if deemed necessary.

DOEE will continue to place emphasis on monitoring within the Anacostia Watershed because of the Anacostia River Trash TMDL. However, sites will continue to be monitored within the Potomac River and Rock Creek watersheds as well to help DOEE evaluate trash loading rates within these portions of the District.

Data collected during the original Anacostia River TMDL study were collected solely in the Coastal Plain Physiographic Province of the District. Monitoring revealed that it takes at least 0.25 inches of rain to move trash through the MS4 in this area. However, the District is also interested in the physical dynamics of trash in the Piedmont Physiographic Province. In collaboration with EPA, the District decided to lower the qualifying storm threshold for monitoring stations located in the Piedmont area. Consequently, rainfall thresholds for sites events within the Piedmont (i.e. Walter Reed and Battery Kemble) must exceed 0.1 inches of rainfall to trigger a data collection event. Rainfall thresholds at outfalls within the Coastal Plain (i.e. all other stations) must exceed 0.25 inches of rainfall to trigger an event.

Precipitation data will be obtained from the Reagan National Airport rain gauge via the National Weather Service. Localized storm information may be obtained from other local rain gauges closer to each station via commercial weather services such as Weather Underground.

All sampling events will be separated from the last rainfall event by at least 72 hours. Data on trash from a minimum of three and a maximum of six storms per station will be obtained, with a separation of 30 days between samples (AWS 2013).

6.3 Sample Collection and Analysis

Before a storm event, trash traps (either sock or box type) are installed at one or more of the six outfalls chosen for monitoring to capture all trash larger than one inch (AWS 2013).

For each event, trash will be manually removed from each trap and placed in trash receptacles and labeled. The trash receptacles will then be taken off-site and allowed to drain excess water for up to 72 hours of collection to avoid decomposition of the organic components prior to the processing of samples (AWS 2013). Manmade trash will be separated by hand from natural material (e.g., vegetative material).

A drained weight will be recorded for trash and natural material and a total weight for each sample site will be calculated (AWS 2013). For specific types of trash, data on count, not weight, will be collected. The trash will be inventoried according to the categories used for the 2008 Anacostia Trash Reduction Plan study categories including, but not limited to:

- Food wrappers
- Cups and straws
- Tobacco products
- Takeout containers
- Paper
- Bottles and cans
- Plastic bags
- Styrofoam products
- Other

(MDE & DOEE 2010; AWS 2013).

Data collected for loading estimates and comparison to DOEE's Trash WLA will be based on total weight of trash only.

After data collection and analysis is complete, the trash will be disposed of at an appropriate trash disposal facility. Most of the trash collected is too dirty for recycling to be a reasonable option. No laboratory analysis is involved (AWS 2013).

Both Special Use Permits and Scientific and Data Collection Permits must be obtained from the National Park Service for stations located on National Park Service property. The Special Use Permits must be renewed every five years, and the Scientific and Data Collection Permits must be renewed every two years (DOEE 2013a).

6.4 Quality Control

The sampling methodology consists of one person observing the type and quantity of trash items and a second person recording the observation. Quality control checks will be performed by reversing the roles of the personnel and comparing the data sheets. Accuracy of the total should be within five percent and accuracy of any individual item should be within 10 percent (AWS 2013).

The data will be reviewed and inspected for any unexpected trends or findings. The quality assurance manager will recommend changes in procedures that are needed to ensure that the data meet the desired end use (AWS 2013).

6.5 Reporting

The Quality Assurance Project Plan and Monitoring Plan (AWS 2013) for trash monitoring includes a detailed description of the documentation required and associated with trash collection, the records that are retained, and the reporting that is performed in association with this monitoring effort.

Data are initially recorded on paper data sheets and then transferred into an electronic database. Tables of rainfall data for the rainfall event and two days preceding the rainfall event for all sampling events are also recorded and kept on record for reporting purposes. Narrative reports will also be included in reporting (AWS 2013). Data from the trash monitoring and a brief narrative will be prepared for inclusion in the MS4 Annual Report and Discharge Monitoring Reports (DMRs) (AWS 2013).

6.6 Adaptive Management

As trash monitoring data are collected and evaluated, DOEE may decide that modifications might allow for better characterization of the accumulation and capture of trash. In addition, other monitoring elements that are not required by permit may be included within the monitoring program. This might include the use of alternative technologies such as trawls in the mainstem Anacostia, and the installation of additional, more permanent trash traps in the Anacostia River and its tributaries. Other data collection methods may also be incorporated into the monitoring framework. For example, the use of stream channel and river shoreline transects at which to collect data, and the evaluation of new methodologies such as those being used by the NOAA to monitor marine debris (as discussed further in NOAA 2013) might be considered. Other approaches such as the reliance on volunteer monitoring by submitting information via phone apps may also be incorporated into the existing program.

As this trash monitoring program continues to evolve, these and other approaches will be evaluated for feasibility, appropriateness, and cost effectiveness. Communication with EPA Region 3 will continue as needed to discuss potential changes to the monitoring program as these issues and options are evaluated.

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7 Quality of the Stormwater Program

Section 5.1.2 of DOEE's MS4 Permit requires DOEE to use the information collected through the Revised Monitoring Program to "evaluate the quality of the stormwater program."

It is important to note that the permit does not define the term "quality" nor does it define how it should be measured. Lacking this clarity, DOEE developed a definition and subsequent approach that clearly measures "quality". In order to help define this term and evaluate how other stormwater programs have addressed it, numerous permits and stormwater programs were evaluated nationwide. While no other MS4 permits were found to have this identical language, some Phase II MS4s in California have similar permit requirements, but are termed "stormwater program effectiveness assessments". A significant amount of work has been undertaken in California in the past several years to develop a process to help MS4s to implement this "effectiveness assessment." Similarly, the use of environmental indicators to assess stormwater program effectiveness has also received significant attention. The development of DOEE's approach to evaluating the "quality" of its stormwater program utilizes these concepts and resources.

Stormwater Program Effectiveness Assessment

> *Effectiveness assessment is a fundamental and necessary component of developing and implementing successful programs. It begins with the establishment of goals, objectives, and desired outcomes during program planning, and continues throughout subsequent implementation and review stages. A well-executed assessment element can provide managers the feedback necessary to determine whether their programs are achieving intended outcomes (complying with permit requirements, increasing public awareness, changing behaviors, etc.), and ultimately whether continued implementation will result in water quality and/or habitat improvement.*
>
> (CASQA 2005)

"Quality" is defined here as compliance with the MS4 permit and effectiveness of the SWMP. These two metrics are measured by progress made towards meeting established benchmarks and milestones. Because compliance with the MS4 permit will be used as the metric to define "quality" it is necessary to define what is included in "compliance with the permit." Sections 1.4.1 through 1.4.3 of DOEE's MS4 permit require development and implementation of BMPs to reduce pollutants in the MS4 discharges to the maximum extent practicable and ultimately achieve the WLAs applicable to the discharges. Section 1.4 also includes the acknowledgment that compliance with Sections 2 through 8 of the permit will be considered to be adequate progress toward achieving the WLAs.

The requirement to evaluate the quality of the stormwater program is included within the monitoring section of the MS4 permit. "Monitoring" is a very broad term and includes MS4 discharge sampling, visual monitoring, such as BMP inspections; and monitoring of progress toward other MS4 programmatic requirements like education and outreach. As a result, these "monitoring" efforts

produce a wide range of data and information that must be incorporated into an approach to effectively evaluate stormwater program quality.

"Monitoring" is defined as more than just discharge sampling because it is common to face challenges when using stormwater discharge data as the only metric to assess MS4 program quality or effectiveness. For example, Santa Clara Valley Urban Runoff Pollution Prevention Program's [SCVURPPP] *Stormwater Environmental Indicators Demonstration Project – Final Report* (2001) states that "variability in stormwater pollutant concentrations, magnified by variability in runoff volume, tends to confound efforts to detect trends in pollutant loads." In addition, Cloak (2002a), who was evaluating Santa Clara's program, indicates that variability in pollutant concentrations and flows can limit the practicality of using pollutant load reductions to evaluate program quality or effectiveness.

Benchmarks

A "quantifiable goal or target to be used to assess progress toward 'milestones' and WLAs, such as a numeric goal for BMP implementation. Benchmarks are intended as an adaptive management aid and generally are not considered enforceable."

Milestones

"An interim step toward attainment of a WLA that upon incorporation into the permit will become an enforceable limit or requirement to be achieved by a stated date. A milestone should be expressed in numeric terms (i.e., as a volume reduction, pollutant load, specified implementation action or set of actions) when possible and appropriate."

District of Columbia MS4 Permit, Section 9

EPA also recognizes this variability. It states that the variability in frequency and duration of storm events "make it difficult to determine with precision or certainty actual and projected loadings" from municipal stormwater discharges (EPA 2002). Therefore, EPA believes that, in such situations, permit limits can be expressed as BMPs. Subsequently, measuring progress toward meeting these permit limits will rely heavily on monitoring progress of BMP implementation.

Urban runoff pollutant loads are not the only (or necessarily the most significant) factor affecting receiving waters (SCVURPPP 2001). Pollutant sources not controlled by BMPs or not under the authority of the permittee (e.g., atmospheric deposition or natural presence of trace metals in soils) may contribute substantially to the total load of many stormwater pollutants, thereby masking any reduction in controllable sources (SCVURPPP 2001). Even for those sources controlled by BMPs, BMP effectiveness varies widely with location, time, rainfall intensity, and other factors.

SCVURPPP (2001) identified a number of factors that may influence or confound perceived "effectiveness." DOEE will also take these factors into account, where appropriate, including:

- The complex nature of watersheds and the response of streams and other water bodies to land use within the watershed;
- The natural and human history of watersheds, including the legacy of industrial activities;

- The multifaceted effects of urbanization, including the changes to hydrology, flooding, drainage-ways, and water quality, as well as the damming and diversion of stream flow, that typically accompany urban development;
- An understanding of sources, fate, transport, and effects of pollutants throughout the watershed;
- The relationship between BMP implementation and watershed effects, including reductions in pollutant loads; and
- The problems of natural and random variability, as well as uncertainty in measurement, associated with environmental sampling.

(SCVURPPP 2001)

Keeping these factors in mind, the Revised Monitoring Program is designed to facilitate collection of timely and relevant data and information that both meets permit requirements, and serves as the basis for "evaluating the quality of the stormwater program." Evaluating stormwater program quality or effectiveness requires a commitment to continuous improvement of the program (Cloak 2002b). As Cloak states:

> *"Without an established process of continuous improvement, the results of indicators would carry "regulatory baggage;" that is, would suggest that an MS4 was falling short of an elusive "maximum extent practicable" standard. The continuous improvement process recognizes that "maximum extent practicable" is a moving target and that the MS4 must expect continuous change within their pollution prevention programs. Further, the continuous improvement policy insures that budget and personnel are assigned to implement recommended improvements timely"* (Cloak 2002b).

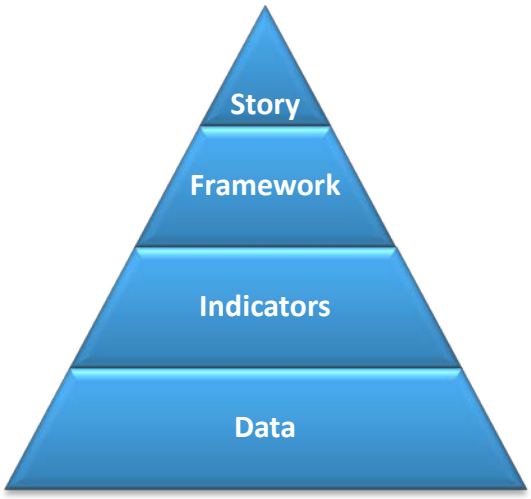

Figure 7-1. DDOE approach to evaluating the quality of the MS4 program (adapted from SCVURPPP 2001)

DOEE's approach to assessing the quality of its stormwater program is summarized in Figure 7-1. This approach includes the collection of data and information ranging from water quality sampling data (e.g., analytical water quality data) to programmatic data on progress DOEE has made to meet water quality goals and MS4 permit requirements. Programmatic, social, physical, hydrological, and environmental indicators will be used to organize these data. The indicators will then be evaluated within the context of a framework to allow DOEE to tell a "story" regarding the quality of its stormwater program. The components identified in Figure 7-1 are discussed in further detail below.

7.1 Data

A significant amount of data and information has been and will continue to be produced in association with the various elements of DOEE's MS4 program. This includes a wide range of information such as: water quality data (e.g., from both wet weather discharge and receiving waters); physical and hydrological data (e.g., flow and habitat data); biological data (e.g., macroinvertebrates, fish); and programmatic data (e.g., number of BMPs inspected, results of public surveys, and illicit discharge tracking data). These data are the building blocks of the evaluation of the quality of the stormwater program.

7.2 Indicators

While it can be important to collect a large amount of data on a given waterbody, the amount of data can be overwhelming, especially when trying to evaluate the "big picture" of a waterbody's health. This can be especially difficult when data are highly variable, or provide contradictory information about whether a waterbody is in good health or not. The Center for Watershed Protection (CWP) (1995) recognized this issue and suggested evaluating select parameters as "indicators" that help to tell the story of the whole system when it is not practical or feasible to evaluate all parameters.

Environmental indicators are direct or indirect measures that are used to show trends or responses in discharges, receiving waters, outcomes, etc. The CWP (1995) defined stormwater environmental indicators as "a measurable practice which singly or in combination with other features, provides managerially and scientifically useful evidence of the effects of stormwater runoff on ecosystem quality or trends in ecosystem quality." Indicators can be used as an essential "building block" in achieving an understanding that can lead to informed, coordinated action (Cloak 2002a).

CWP (2000) identifies a number of indicators that can be used to assess stormwater programs (Table 7-1). The CWP recommends using programmatic and social indicators in addition to measures of water quality and biological health to gauge the effectiveness (i.e., "quality") of urban stormwater programs.

A number of communities use these indicators within MS4 programs. SCVURPPP also analyzed the usefulness of these indicators within the context of the assessment of its stormwater management program. Table 7-2 provides a summary of several select CWP indicators in relation to their perceived usefulness and the framework in which they should be applied. The indicators discussed in Table 7-2 are those that SCVURPPP identified as being "very useful", "useful", or "somewhat useful."

DOEE will evaluate and adjust selected indicators as needed.

Table 7-1. Stormwater Indicators (CWP 2000)	
Category	**Indicator Name**
Water Quality Indicators *	Water quality pollutant constituent monitoring
	Toxicity testing
	Pollutant loadings
	Exceedance frequencies of water quality standards
	Sediment contamination
	Human health criteria
Physical and Hydrological Indicators *	Stream widening/down-cutting
	Physical habitat monitoring
	Impacted dry weather flows
	Increased flooding frequency
	Stream temperature monitoring
Biological Indicators *	Fish assemblage analysis
	Macroinvertebrate assemblage
	Single species indicator
	Composite indicator (e.g., IBI)
	Other biological indicators (e.g., mussels)
Social Indicators	Public attitude surveys
	Industrial/commercial pollution prevention
	Public involvement and monitoring
	User perception
Programmatic Indicators	Number of illicit connections identified/corrected
	Number of BMPs installed, inspected, maintained
	Permitting and compliance
	Growth and development
Site Indicators	BMP performance monitoring
	Industrial site compliance monitoring

*Sometimes these are grouped as “watershed indicators.”

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Table 7-2. Indicator Usefulness (adapted from SCVURPPP 2001)					
Indicator Category	**Sub-category**	**Indicators***	**Usefulness for Assessment**	**Key conditions and requirements for enhancing usefulness**	**Additional or Alternative Indicators**
Programmatic/ Site Indicators		Number of Illicit Connections Identified/ Corrected	Very useful	Establish programmatic indicators to complement Performance Standards and use as part of continuous improvement process	Consider appropriate programmatic indicators for public agency activities, new development, or other program elements. Consider programmatic indicators for participation in watershed management process.
		Number of BMPs Installed, Inspected, and Maintained	Somewhat useful		
		Permitting and Compliance	Useful		
		Industrial Site Compliance	Useful		
Watershed Indicators	Physical and Hydrological	Growth and Development (Imperviousness)**	May be possible to use physical condition of streams and extent of drainage modification as an indicator of success in Watershed Management	Requires long-term data sets and consistent protocols. Most effective when used to measure specific temporal effects of land use change or watershed management actions	Flow diversions, amount or proportion of altered vs. natural channel, inventory of storm drain outfalls and design flows, extent of floodplain, extent of riparian area
		Physical Habitat			
	Water Quality	Sediment Characteristics and Contamination (Sediment contamination)	May be applied at site or catchment scale to supplement programmatic measures of BMP implementation	Sediment a more robust indicator than storm flows. Best used to monitor response to clean up of specific sites or catchments.	Continuous monitoring of dissolved oxygen during summer months. Consider other indicators of urban influence on stream sediments (e.g., visual observations or oil/grease)
	Biological	Fish assemblage	Use to correlate and confirm effects of physical and hydrological changes and changes in water quality	Long-term consistent monitoring at selected sites. Select indices based on goals and practicability	Fish and macros the best biological indices because methods are established and links to stream function and beneficial uses are widely understood.
		Macroinvertebrate assemblage			
Social Indicators		Industrial/ Commercial Pollution Prevention	Can test effectiveness of specific outreach messages	Use to measure success of specific outreach campaigns	Similar approach could be applied to other groups (e.g., mobile cleaners, landscapers, restraint managers)
		Public Attitude surveys		Measure behaviors instead of attitude. Focus on everyday activities that can affect water quality	

*Indicated as “very useful”, “useful”, or “somewhat useful” by SCVURPPP (2001)

**SCVURPPP categorized this indicator as a watershed indicator rather than a programmatic indicator as the CWP did originally.

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7.3 Framework

Indicators will be most effective when they are assessed within an organizing framework to create a compelling, well-communicated story (Cloak 2002a). As analytical sampling data alone are not sufficient to evaluate MS4 program "quality," the use of any one particular stormwater management indicator, program, or metric would also not be sufficient. However, integrating the pieces together to develop multiple lines of evidence can ultimately "tell the story" of how effectively the MS4 program is meeting its stormwater quality goals, benchmarks, and milestones. As recommended in the SCVURPP study (2001), DOEE's framework will use two categories of indicators: programmatic and watershed indicators for its integrated assessment framework (Figure 7-2).

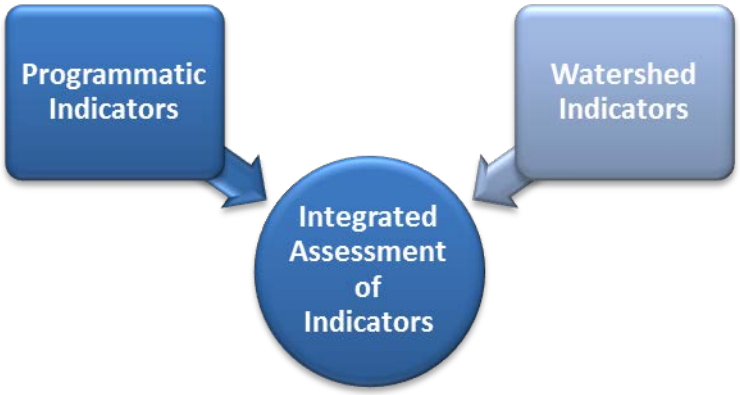

Figure 7-2. Integrated assessment framework to evaluate stormwater indicators (adapted from CASQA 2005)

7.3.1 Assessment Methods

Both programmatic and watershed based indicators will need to be assessed to evaluate the quality of the stormwater program and the achievement of water quality-related goals (e.g., progress toward achieving WLAs) and programmatic requirements. In order to accomplish this, DOEE will establish benchmarks and milestones to serve as goals or targets by which progress can be measured.

There are a variety of ways in which progress toward meeting benchmarks and milestones can be assessed. In 2005, the California Stormwater Quality Association (CASQA) began developing an approach to assess municipal stormwater program effectiveness. As presented by CASQA (2005), "assessment methods are the specific activities, actions, or processes used to obtain and evaluate assessment data or information." Depending on the type of indicator in question, "numerous assessment methods may be possible. Reasons for selecting a particular method include cost, ease of use, need for statistical rigor, applicability, and clarity in communicating progress to the general public" (CASQA 2005). CASQA has developed several broad categories of assessment methods that are summarized in Table 7-3.

Table 7-3. Methods available to evaluate permit efforts (EPA 2007; CASQA 2005)		
Method	**Definition**	**Example**
Confirmation	Documenting whether a task has been completed.	Development of an construction operator BMP outreach brochure
Tabulation	Tracking an absolute number or value of something	Number of brochures distributed to construction operators
Surveying	Determining knowledge, awareness, etc. of a group of people	Phone survey of 100 construction operators, 50 of whom had received the BMP brochure, to gauge any differences in stormwater awareness
Quantification	Estimating pollutant loading	Modeling to determine sediment load reductions prior to initiating construction operator outreach program – assumption made about BMP use before and after program
Inspections or site visits	Observing activities or BMPs	Inspections of construction projects before and after initiating construction operator outreach program
Reporting	Utilizing reports generated by third parties	Audit of construction component of the SWMP indicated that BMPs observed and the level of understanding demonstrated by operators had improved during the last year
Monitoring	Sampling or observation in the field to determine environmental or water quality conditions	Water quality monitoring above and below three comparable active construction sites (Site 1 – trained on construction BMPs, Site 2 – no training, Site 3 – random control, unknown level of BMP understanding) to determine any differences in per/acre disturbed loading of sediment

These methods can be used to assess the "outputs" as well as the "outcomes" of an MS4 program. As discussed by Cloak (2002b), an output is the "level of investment or effort and is the most direct way to insure program accountability. An outcome measures the results of the program component, and can be affected by factors internal to the MS4 program (e.g., degree of expertise or organization) as well as external factors (e.g., economic conditions, seasons, other programs that may complement or compete with stormwater programs.)"

Table 7-4 provides several examples of the assessment methods and measures that can be used for each indicator type. While this approach provides a measureable way in which to evaluate the various elements associated with the MS4 program, also included is a significant amount of flexibility.

Measurement Example

The industrial inspection component of a stormwater program could be monitored for the number of inspections completed in a year (output), or the percentage of facilities in compliance (outcome), or both.

An educational program could be monitored by expenditure on media buys (output), or by surveys that measure awareness (outcome), or both.

Changes in outputs tell us the most about how the program is performing, and should be tied most closely to permit compliance. Changes in outcomes, on the other hand, may indicate changes in program performance – or may indicate changes in external conditions.

(Cloak 2002b)

Table 7-4. Examples of Assessment Methods and Measures by Outcome Level (Adapted from CASQA 2005)			
Indicator type	**Assessment method type**	**Assessment Measure**	**Examples**
Programmatic Indicators	Confirmation	Task completion (yes/no)	Completed update of source inventory
	Tabulation	Implementation (# or %) Change	Number of inspections completed Increase since 2001
	Inspection	Implementation (# or %) Change	Installation of berms around trash areas Increase since beginning of program
	Reporting (discharger)	Implementation (# or %) Change	Installation of storm drain inserts % increase
	Reporting (3rd Party)	Implementation / non-compliance (# or %) Change	Number of complaints reported Decrease since beginning of program
	Survey	Implementation (# or %) Change	Number of people up pet waste Increase over last year
Social Indicators	Survey	Knowledge	Knowledge of storm drain vs. sanitary sewer
	Tabulation	Change Action Change	Increase in awareness since last survey Number of hotline calls/ website hits Increase over last year
Water Quality Indicators – pollutant loadings	Quantification	Loading Change	Copper release from brake pads Decrease since 1996
	Monitoring (sampling)	Loading Change	Diazinon loading from lawns Decrease since 2002
Water Quality Indicators – wet weather outfall discharge	Monitoring (sampling)	Benchmark	Comparison of Cu to Water Quality Objective
		Loading Change	Phosphorous loading to MS4 Increase since 1993
		Concentration Change	TSS levels in runoff Increase since 1995
Water Quality Indicators – receiving waters	Monitoring (sampling)	Benchmark Concentration	Comparison of Zn to WQS Nitrate concentration in Rock Creek
	Monitoring (observation)	Biological condition Physical habitat	Stream biodiversity Scouring of stream bank
		Biological condition Physical habitat	Loss of riparian canopy Erosion of stream bank

7.4 The "Story"

A large amount of data will be collected in association with the Revised Monitoring Program, but these data alone cannot tell the "story" of the effectiveness or quality of a stormwater program. As described by Burton and Pitt (2010), in regard to stream impairments, multiple lines of evidence are "essential in order to reach reliable conclusions of whether a problem exists". Evaluating data from a particular element of the stormwater program in isolation without considering the whole program collectively can provide a distorted picture. For instance, in-stream water quality data may indicate the receiving stream is of high quality. Upon further evaluation, however, the in-stream biological communities within the stream reach may be poor. Further evaluation may determine other factors are influencing the aquatic habitat, such as high flows through the reach during rainfall events or localized habitat impacts. Without collectively evaluating multiple lines of evidence, one may not get a clear picture of a waterbody's sources and stressors or be able to effectively determine how to mitigate impacts.

Similarly, there are many factors that impact waterbodies within the District. Some of these factors are not within the control of DOEE, such as up-stream flows from Maryland or Virginia, or pollutant contributions from federal facilities. In some situations, factors may come into play that may have unforeseen short-term impacts on the quality of the stormwater program. For instance, DOEE may implement structural BMPs as required in the MS4 permit. Water quality sampling may show little improvement in the short term. Issues such as "lag times"[4] may impact how quickly structural BMPs may result in improvement in a water body.

As such, multiple lines of evidence will be evaluated in a comprehensive manner to tell the "story" of the quality of the stormwater program. These include the various elements of the Revised Monitoring Program (e.g., wet weather outfall monitoring, dry weather discharge monitoring, receiving water monitoring, geomorphological monitoring, biological monitoring) as well as programmatic elements associated with the MS4 program (e.g., number of trees planted, BMPs inspected, etc.).

7.5 Reporting on the Quality of the Stormwater Program

DOEE has a number of existing reporting requirements under the MS4 permit, including DMRs and the MS4 Permit Annual Report, which will be used to report on the evaluation of the "quality of the stormwater program." Reporting on the quality of the stormwater program will be "more than an exercise in collecting and tabulating data; evaluation data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of BMPs, reporting information to the public, and planning future management activities (EPA 2008)."

Table 7-5 includes an example of how this information can be included within the Annual Report. Table 7-6 conveys how the indicators referenced in Table 7-5 are defined with examples demonstrating how these can be used. Building upon information that is already currently conveyed within the Annual Report, Table 7-5 includes each element required of the MS4 permit in the first column. Subsequent

[4] Defined as the time elapsed between installation of a BMP and the first measurable improvement in water quality in the target water body (Meals et al 2009).

information can also be included including items such as current baseline conditions, benchmarks and milestones, and any needed modifications to the associated program requirement.

Section 2 of 5.1.2 of the MS4 permit requires DOEE to:

- "…identify and prioritize additional efforts needed to address water quality exceedances, and receiving stream impairments and threats" and to
- "…identify water quality improvements or degradation."

These requirements will be discussed in DOEE's fourth year Annual Report. As discussed by EPA in its fact sheet on *Evaluating the Effectiveness of Municipal Stormwater Programs* (2008), fourth-year annual reports "are a good opportunity to use data gathered under the entire permit period to guide future management direction." Conveying this information in the fourth year report will also provide DOEE the opportunity better gauge water quality changes or needed program modifications as the result of true trends rather than year-to-year variability.

7.6 Integration with the Consolidated TMDL IP

The methodology described in this section can be used to help track progress towards achieving TMDL-related benchmarks and milestones as described in the Consolidated TMDL IP (DOEE 2015). As described in the IP, the primary type of data used to track the achievement of WLAs is the BMPs implemented to capture and treat stormwater runoff before it enters the MS4 system, and the area controlled by BMPs. The specific BMP monitoring data collected includes:

- Type of BMP
- Location of BMP
- Implementation date
- Area controlled by the BMP
- Design stormwater volume retained by the BMP

BMPs fall under the programmatic indicators category as described in section 7.2. The IP Modeling Tool is the assessment part of the framework used to calculate load reduction for each BMP implemented and, when lumped with other BMPs in the same watershed, it is possible to evaluate the progress towards meeting WLAs. This information will be used, along with monitoring data to tell the "story" of how stormwater pollution is increasing or decreasing in a watershed, and when WLAs are achieved.

The monitoring programs described in this report will in turn help to inform the IP. MS4 outfall monitoring data will be used to supplement BMP monitoring information and can confirm that individual WLAs have been achieved. The other monitoring data (e.g., dry weather screening, receiving water) will provide context for watershed health and will help to inform management strategies regarding MS4 discharges and loads.

More information on how data from the Revised Monitoring Program is used in the Consolidated TMDL IP can be found in Chapter 7 ("Tracking Progress in Meeting MS4 WLAs") of that document.

Table 7-5. Example of Reporting of Information Associated with Evaluation of the Quality of the Stormwater Program*

MS4 Permit Program Category	Indicator Type	Data Collection Method	Baseline (i.e., starting point)	Benchmark (short term goal)	Short-term Goal Achieved? (yes/no)	Accomplished to Date (cumulative benchmark summary if applicable)	Milestone (5-year permit cycle goal)	5-year Goal Achieved? (yes/no)	Long-term Goal (5+ years)	Program Modifications Needed (yes/no)	Notes
Permit Administration	Programmatic	Confirmation									
Legal Authority											
Stormwater Advisory Panel and Technical Workgroup											
Program Funding and Costs											
Implementation of Stormwater Control Measures											
Standard for Long-Term Stormwater Management											
Code and Policy, Site Plan Review, Verification and Tracking	Programmatic	Confirmation									
Off-site Mitigation / Fee-in-Lieu											
Green Landscaping Incentives											
Retrofit Program											
Tree Canopy											
2013	Programmatic	Tabulation	35% tree canopy	25% increase in tree planting rates	yes	36%	36% tree canopy		40% tree canopy by 2035		Casey Trees graded the District an A-
			planting 3,000/yr	plant 4,150 trees/yr	yes	4,150	plant 20,750 trees over 5 years				DDOE, federal and private entities play a role in meeting 40% goal
2014			35% tree canopy	25% increase in tree planting rates	yes	37%					
			planting 3,000/yr	plant 4,150 trees/yr	yes	8,300	plant 54,000 trees across city				
Tree Survival Rate			80% survival rate		no	80%	85% survival rate		90% survival rate		
Green Roofs											
2013	Programmatic	Tabulation	1,285,000 sq ft	install 70,000 sq ft/yr in MS4 area	no		350,000 sq ft installed on District properties				
2014					yes	120,000 sq ft					
				Perform structural assessment of District properties	yes						
O&M of Retention Practices											
District owned and operated practices	Programmatic										
Non-District Owned and operated practices											
Stormwater management guidebook and training											
Public Education and Participation											
Education and Outreach	Social										
Measurement of Impacts											
Recordkeeping											
Public Involvement and Participation											
Monitoring and Assessment Controls											
Revised Monitoring Program											
Macroinvertebrates	Monitoring (sampling)										
Geomorphology	Monitoring (observation)										
Habitat	Monitoring (observation)										
Ambient Water Quality	Monitoring (sampling)										
Trash Monitoring	Monitoring										
Area and Source Identification Program	Monitoring										

*Note that the information included with this table are examples of the types of data and information that could be included in such an analysis. Numbers included here are for demonstration purposes only.

Table 7-6. Indicator Types, Definitions, and Examples

Method	Definition	Example
Confirmation	Documenting whether a task has been completed	Development of a construction operator BMP outreach brochure
Tabulation	Tracking an absolute number of value of something	Number of brochures distributed to construction operators
Surveying	Determining knowledge, awareness, etc. of a group of people	Phone survey of 100 construction operators, 50 of whom had received the BMP brochure, to gauge any differences in sw awareness
Quantification	Estimating pollutant loading	Modeling to determine sediment load reductions prior to initiating construction operator outreach program
Inspection or site visits	Observing activities or BMPs	Inspections of construction projects before and after initiating construction operator outreach program
Reporting	Utilizing reports generated by DOEE and third parties	Audit of construction component of the SWMP indicated that BMPs observed and the level demonstrated had improved over past year
Monitoring	Sampling or observation in the field to determine environmental or wq conditions	Water quality monitoring above and below three active construction sites to determine differences in per/acre disturbed loading of sediment

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8 Data Management

Data collection is the fundamental task of the Revised Monitoring Program, and is necessary to help ensure DOEE meets the goals and objectives of the MS4 permit and other related programs. Without careful management, however, these data lose value.

Data management is essential to link monitoring efforts and information analysis. For example, data collected to characterize water quality before and after a stream restoration project must be properly managed in order to determine effectiveness of the restoration (EPA 2011). Careful data management facilitates better sharing of data to the public and promotes a wider understanding of the impacts of stormwater and efforts to combat pollutant sources in the District.

Data Management

This is the process of organizing, storing, retrieving, and maintaining the data that are collected through monitoring efforts or other programs.

This includes record-keeping procedures, data-handling procedures, and the approach used for data storage and retrieval of electronic data.

(EPA 2011)

The purpose of data management is to facilitate storage, use, and ultimately, analysis of the data. The data and information collected through monitoring efforts are a valuable and often irreplaceable resource. Therefore, retention and documentation of high quality data are the foundation upon which the success of monitoring programs rest. To ensure the data are compiled and stored to most effectively meet DOEE's needs, several questions were evaluated including:

1. What type of data are needed or will be used and why (what regulatory or other purpose do the data serve)?
2. How are data collected?
3. Where and how are data stored/maintained?
4. When and how often are the data updated?
5. What are the sources of data and what inter-relationships exist between data sources?
6. What are the data quality requirements and how are they addressed (QA)?
7. Who is responsible for the data management?
8. How will these data be incorporated into resource management decisions?
9. How will institutions and networks assimilate these materials and put them to productive use as more baseline inventory, monitoring, and legacy data become available?
10. Will all data be archived on site or do alternatives exist or need to be planned?
11. How will data be managed over time?

The following sections summarize the recommended elements of a data management system necessary to support the Revised Monitoring Program based on the answers to the above list of questions.

8.1 Data Management Goals and Objectives

DOEE's overarching data management goals are to:

- Ensure the highest quality and accuracy of program data;
- Fully qualify, document, and catalog all data to ensure their proper interpretation and use;
- Maintain data in an environment that ensures the long-term security and integrity of data;
- Ensure the longevity of data by keeping data formats standardized and current; and,
- Provide data in a variety of formats and venues to reach all potential users.

The following objectives help further frame these goals (adapted from Press 2005):

- Outline the procedures and work practices that support effective data management:
- Guide current and future staff to ensure that sound data management practices are followed;
- Guide the enhancement of legacy data to match formats and standards;
- Encourage effective data management practices as an integral part of project management so all data are available and usable for DOEE decisions now and into the future;
- Establish roles and responsibilities of DOEE staff for managing data;
- Identify necessary elements for a functional data management program and describe any anticipated changes to those elements;
- Establish an organizational schema for data and information so that they are retrievable by staff, cooperators, and the public;
- Establish basic quality control standards; and,
- Establish standards for data, data distribution, and data archiving to ensure the long-term integrity of data, associated metadata, and any supporting information.

8.2 Database Organization

An essential element of effective data management is a data storage, management, and retrieval system. DOEE's monitoring data (quantitative and qualitative) will be input into separate Microsoft Access databases for each component of the Revised Monitoring Program described in the preceding chapters: wet weather monitoring, dry weather screening, receiving water monitoring, and trash monitoring. The formatting of these data will take into account several factors, including formatting previously used by DOEE and formatting that will allow for consistency with other local programs (i.e., Metropolitan Washington Council of Governments water quality database, Chesapeake Bay Program's Information Management System).

Using multiple databases allows for faster querying and provides the flexibility needed to expand each database without altering performance. The databases will be accessed through a master database using a graphical user interface (GUI). The GUI provides a method for non-technical users to easily access data in each of the databases. The GUI also has the capability to link analytical and spatial data to create maps that can communicate the results in a powerful way to a wide audience.

Each database will be composed of a number of tables to organize the data. Each table will include a different type of data with a unique key (e.g., sample ID number) to link tables. For example, the wet weather monitoring data will need separate tables for sample results (units, QA code), sample collection information (time, date, method, collector), parameters (analytical method, dissolved or total basis), storm event information (inches of precipitation, time since last storm, source of weather data), and sample station information (coordinates, any notes). The database will also include fields for method detection limits to allow for better interpretation of findings of non-detection.

It is essential to have a coordinated and integrated data management system. Each Division or Branch within DOEE does not need to develop its own data management system for monitoring data. Instead one system of databases will be created and accessible to all DOEE staff that collect or use the monitoring data. These integrated databases will make sharing and communicating data, an important element of the Revised Monitoring Program, easier to both internal and external users.

8.3 Data Stewardship

Multiple Divisions and Branches within DOEE collect monitoring data. Assigning a party responsible for the maintenance of each database will help ensure consistency and accountability for related data management issues. To ensure data management is centralized and to avoid multiple versions of databases being changed, one person will be appointed to serve as Data Manager. This person's responsibilities are to:

- Serve as point person to receive all lab data, and data collected in the field from DOEE field staff and contractors
- Organize all data collected for the stormwater program on DOEE's network and into the databases
- Retain all hardcopy records (detail list is below)
- Maintain and update the master database
- Generate the data queries needed for various tables and figures for MS4 annual reports, DMRs, and internal reports
- Upload relevant data to EPA's STORET each year
- Upload data to DOEE's website
- Communicate with outside agencies (e.g., NPS, USGS, local universities) regarding data collected and how to best coordinate data storage and analysis

8.4 Data Entry

Data quality will be rigidly controlled from the point of collection to the point of entry into the databases. Field and laboratory personnel will carefully record data so that it can be seamlessly uploaded into the databases at DOEE. Data collected in the field will be entered into the DOEE databases from field computers/handheld devices within three days from when the data are collected, and any hardcopy records will be filed appropriately with the Data Manager.

Laboratory data will be reviewed and entered into the database as soon as it is available, with the goal of having data review take place within five working days of receipt from the lab. For some parameters, it might be appropriate to set up automatic checks to flag duplicate values or values outside a pre-set range. Additional data validation will include expert review of the verified data to identify possible suspicious values. In some cases, consultation with the individuals responsible for collecting or entering original data may be necessary to resolve problems. After all data are verified and validated, they will be merged into the monitoring program's database. To prevent loss of data from computer failure at least one set of duplicate (backup) data files will be maintained. Original laboratory data sheets (i.e., hard copy) will be maintained in a secure location where they will not be lost or tampered with. Data will be carefully checked against copies of the original final data sheets prior to data analyses.

Once the data has been entered in the appropriate monitoring program database, the Data Manager will print a paper copy of the data and proofread it against the original field data sheets. Statistical and graphical analysis may be used to reveal whether keystroke errors occurred during data entry. Once verified, errors in data entry will be corrected at that time and documented. Outliers and inconsistencies will be flagged for further review and investigation. Data flagged as being an outlier or otherwise inconsistent will be discarded if appropriate.

8.5 Metadata

The MS4 permit requires specific data to be collected and maintained for all monitoring performed as part of the permit. DOEE will retain records of all monitoring information including all original lab and field data for a period of at least five years from the date of the sample or measurement. DOEE will store electronic data reports from the laboratory as well as maintain files containing any records necessary to reconstruct the analytical details associated with a particular monitoring event. Records will include:

- COC forms
- Field equipment calibration and tuning records (as applicable)
- Analytical standards preparation logs
- Method SOPs
- Analytical QC results (including method blanks, internal standards, surrogates, replicates, and spike and spike duplicate results, as applicable)
- Raw data (e.g., instrument printouts)
- Details of the QA/QC program in place at the time that the data analyses were conducted

- Date, exact place, and time of sampling or measurements;
- Name(s) of individual(s) who performed the sampling or measurements;
- Date(s) analyses were performed;
- Name(s) of individual(s) who performed the analyses;
- Analytical techniques or methods used; and
- Results of such analyses.

If monitoring results are not available for any reason (i.e., sampling discontinued, laboratory errors, etc.) this information will be recorded as well to allow those reviewing the data to understand why information is missing and to ensure there is not an error in the dataset.

8.6 Data Sharing

As noted above, one of the main purposes of data management for the Revised Monitoring Program is to facilitate a wider understanding of the impacts of stormwater and efforts to combat pollution sources. Methods for sharing data may include:

- Producing web-accessible data and information (e.g., maps, tables, and figures) for DOEE's website
- Regular reporting for managers, political leaders, the public, and stakeholders
- Scientific interactions through professional papers, conferences, and workshops

(PSAMP 2008)

8.7 Data Quality Assurance & Quality Control

Quality assurance and quality control of all data collected is essential to the long term management and stewardship of the Revised Monitoring Program. Many of the monitoring programs described in this Revised Monitoring Program have their own QAPP, while others will require development of a new QAPP. A consolidated QAPP that addresses all monitoring programs must be developed that centralizes much more detailed information on data management and quality control to supplement the information in this chapter, including the following:

- Responsible parties and lines of communication between the parties (e.g., DOEE, EPA)
- Data Quality Objectives
- Documentation and Records Keeping
- Sampling Design
- Sampling Methods
- Sample Handling and Custody
- Analytical Methods

- Quality Control
- Instrument/Equipment Testing, Inspection and Maintenance
- Instrument/Equipment Calibration and Frequency
- Assessment and Oversight
- Reporting
- Data Review and Verification

A dedicated QA Officer will be assigned to address these tasks and ensure that any appropriate recommendations are implemented.

8.8 Data from Non-DOEE Sources

Analyzing and interpreting Revised Monitoring Program data, and placing it in a relevant context, can be strengthened by integrating the program's data with research and/or monitoring results from other sources. For example, if there is suspected groundwater infiltration in a certain area of the District's MS4, it would be useful to examine USGS groundwater monitoring data and maps to determine if groundwater is the source of dry weather discharge to the MS4. Another example would be to compare and supplement data collected under the Revised Monitoring Program with the macroinvertebrate, vegetation, and water quality monitoring performed in Rock Creek Park by the National Park Service's National Capital Region Network. Careful data management in standard formats will enable sharing and analysis of data between agencies to be done with relative ease and make for a more robust Revised Monitoring Program. DOEE will communicate with these agencies and others collecting data in the region to explore the possibility of data sharing.

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Appendices

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APPENDIX 1:

Matrix of Previously Monitored Outfall Stations

Matrix of previously monitored outfall stations										
Outfall ID	**Outfall or Manhole?**	**Station Name**	**Receiving Body**	**Border Station**	**Notes**	**Suspected historic stream?**	**Drainage area (acres)**	**Impervious area (acres)**	**% Impervious (sewershed)**	**% Impervious (Major Watershed)**
156	Manhole	Anacostia HS	Anacostia River	no			252	102	40	35
208	Manhole	East Capitol St.	Kingman Lake	no			15	9	58	35
0	Manhole	Ft Lincoln BMP	unknown trib to Anacostia	no			6	0	0	35
999	Outfall	Gallatin and 14th St.	Chillum Rd NE Trib, then into MD	yes	pipe drains to trib that drains to MD	maybe	672	252	37	35
222	Manhole	Hickey Run	Hickey Run	no			12	10	80	35
1038	Manhole	Nash Run	Nash Run	no			13	5	37	35
187	Manhole	O St Pumping Station	Anacostia River			yes	19	16	80	35
147	Manhole	Stickfoot Sewer	Kingman Lake	no		yes	665	238	36	35
998	Manhole	Varnum and 19th St.	unknown trib to NW Branch in MD	yes	pipe drains into MD and eventually effluent discharges into daylighted stream in MD	maybe	1086	454	42	35
952	Outfall	Archbold Parkway	Foundry Branch	no			36	22	62	44
986	Outfall	Battery Kemble	Battery Kemble Creek/Fletchers Run	no			10	3	28	44

Matrix of previously monitored outfall stations										
Outfall ID	**Outfall or Manhole?**	**Station Name**	**Receiving Body**	**Border Station**	**Notes**	**Suspected historic stream?**	**Drainage area (acres)**	**Impervious area (acres)**	**% Impervious (sewershed)**	**% Impervious (Major Watershed)**
953	Manhole	C&O Canal	C&O Canal	no		maybe	1030	353	34	44
1017	Manhole	Dalecarlia Tributary	Dalecarlia Tributary	no			26	9	33	44
966	Manhole	Foundry Branch	Foundry Branch	no			46	26	55	44
124	Outfall	Oxon Run	Oxon Run	no			41	17	41	44
283	Manhole	Tidal Basin	Tidal Basin	no			14	6	41	44
330	Manhole	Washington Ship Channel	Washington Ship Channel	no			31	27	89	44
879	Outfall	Broad Branch	Broad Branch	no	DOEE daylighting project scheduled for this stream	yes	628	263	42	42
784	Manhole	Klingle Valley Creek	Klingle Valley Creek	no			60	30	50	42
513	Manhole	Melvin Hazen Valley Branch	Rock Creek	no		maybe	156	74	47	42
591	Outfall	Military Road and Beach Dr.	Rock Creek	no		yes	25	1	4	42
750	Outfall	Normanstone Creek	Norman-stone Creek	no			20	8	39	42
913	Outfall	Oregon and Pinehurst	Pinehurst Branch	no			4	1	26	42
945	Outfall	Portal and 16th	Portal Branch	yes	pipe comes in from MD and discharges to Portal Branch		7	3	42	42
851	Outfall	Soapstone Creek	Soapstone Creek	no			314	146	47	42
896	Outfall	Walter Reed/Ft Stevens	Luzon Branch	no			24	13	54	42

APPENDIX 2:

Generalized Random Tessellation Stratified (GRTS) Method

Memorandum

From: B. Crary, H. Bourne, B. Udvardy, K. Ridolfi
Date: 3/26/2015
Project: DDOEIP
To: J. champion
CC: Click here to enter text.

SUBJECT: **GRTS Sampling**

Summary

The Generalized Random Tessellation Stratified (GRTS) method was employed to propose a spatially balanced set of wet weather and receiving water sampling locations based on a predetermined number of sampling locations. The use of ANOVA identified that TSS and Zinc concentrations in monitoring locations have historically been significantly different across watersheds, and thus wet weather monitoring locations were stratified so that samples will be collected equally across the three watersheds. Statistical differences were more difficult to identify across the receiving water sampling locations due to the large variety of factors influencing a water body. Thus, broad stratifications such as ecoregion and strahler order were applied to ensure balanced sampling among streams of different geographic characteristics and flow.

Generalized Random Tessellation Stratified (GRTS) Sampling

Generalized Random Tessellation Stratified (GRTS) sampling is a common approach to ensure that sampling locations are spatially balanced (EPAa. 2015). The GRTS process is an alternative to a purely random sampling approach, which may result in a cluster of sampling points in one area and leave another area free of sample points.

The core concept of GRTS is to iteratively apply a hierarchical grid, until no two potential sample locations are within the same cell (EPAa. 2015). Each cell is assigned a random number at each hierarchical grid level, and each random number is combined to create a unique hierarchical address. Each cell is then sorted based on the reverse order of its address. For example, if the original address of the cell is '12', the reverse address becomes '21'. Each cell is sorted after this reverse transformation, and *n* samples locations are chosen at equal *n*+1 intervals along the ordered list. More detail on this approach and how it maintains spatial balance can be found on the EPA website.

Stratifications can be incorporated into the GRTS procedure such that locations with certain characteristics are sampled at predefined frequencies. Within the district, several stratifications were considered and each are discussed in the sections below.

The GRTS sampling selection was performed in R statistical package with the 'spsurvey' library (R Core Team 2014; Kincaid 2013).

Stratifications

Watershed

The watersheds contributing to the Potomac, Rock Creek, and Anacostia waterbodies were manually delineated as part of the DDOE's IP Model Tool. An Analysis of Variance (ANOVA) demonstrated that TSS and Zn measurements were different across watersheds ($p<0.05$). Because at least one pollutant was spatially biased, watersheds were incorporated as a sampling strata for wet weather locations.

Ecoregion

Ecoregions define a geographic area which share natural conditions and ecological characteristics The District, itself, is comprised of two EPA Level IV Ecoregions, Northern Piedmont (referred to later as 'Eastern Piedmont' and Coastal Plains (EPAb. 2015). It was assumed that aquatic characteristics of each perennial waterway may be influenced differentially based on which ecoregion in which it is located, thus each potential sampling stream was classified by its ecoregion.

EPA's delineation for the Northern Piedmont and Coastal Plains crossed directly through Rock Creek, and this led to the conclusion that these delineations lacked an adequate resolution for classification purposes. EPA's delineations were examined and manually adjusted so that Rock Creek and all of its tributaries were classified as Northern Piedmont, while any waterway lying to the east of the Rock Creek and Potomac merger was classified as Coastal Plains.

Strahler Order

Strahler stream order is a classification system used to define stream size based on a hierarchy of tributaries. Stream order can be related to drainage area and stream size and can be related to the expected ecological function of a stream system (Ward, et. al 2008)

Strahler hierarchy was manually applied to all hydrolines included in the DC OCTO Hydroline.ply, assuming that any polyline was perennial, and this stratification was applied to avoid measurement biases due to stream size. Stream orders for the Potomac River, Anacostia River, and Rock Creek as they enter the District's boundary were assigned based on the NHD Plus Strahler Order database (McKay 2012). If a stream was conveyed through a pipe, strahler order was considered unchanged at the exit of the piped section.

Wet Weather Monitoring Locations

Wet weather outfall monitoring locations were randomly selected with the GRTS procedure using watershed delineation for stratification purposes.

DDOE provided locations of all existing outfalls, and all of these sites were considered as potential sample locations provided that the outfall diameter was greater than the District median of 24 inches. A total of 264 outfalls were subsequently considered. Analysis determined that three sites and one oversample site per stratum be selected per watershed. The selected sampling locations are shown in Figure A2-1 and listed in Table A2-1.

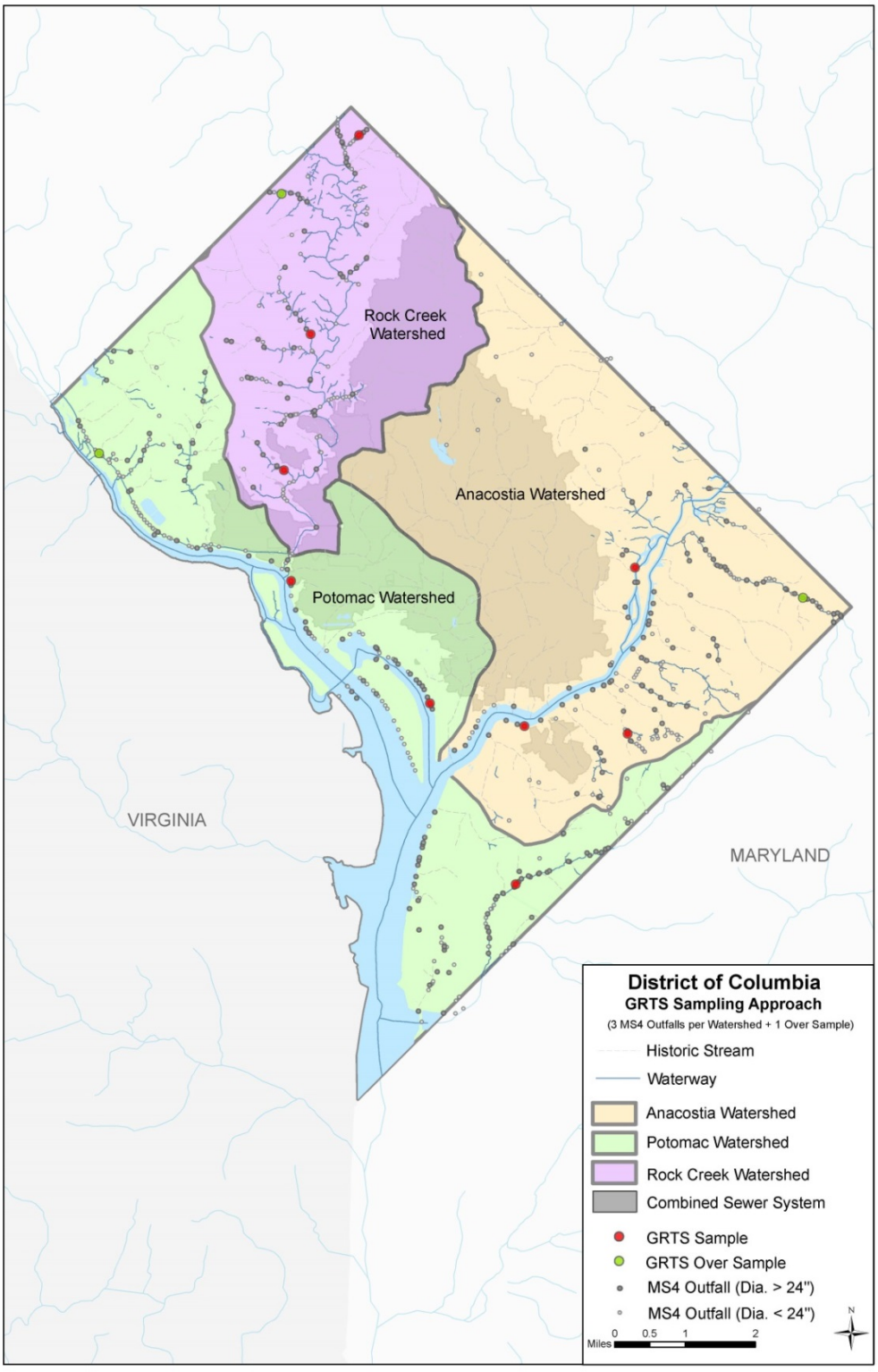

Figure A2-1. GRTS Generated Wet Weather Monitoring Locations

Table A2-1. GRTS Generated Wet Weather Monitoring Location Details.			
Watershed	**Outfall Unique ID**	**Diameter (in)**	**Receiving Water**
Potomac River	F-391-C-6-7-SW	24	Washington Ship Channel
Potomac River	F-240-K-3-NW	72	Potomac River
Potomac River	F-284-CD-19-20-SE	48	Oxon Run
Potomac River	F-22-TU-11-12-NW	72	C&O Canal
Anacostia River	F-538-CD-7-8-SE	42	Anacostia River
Anacostia River	F-412-IK-7-8-SE	48	Texas Avenue Tributary (Tributary to)
Anacostia River	F-683-IK-3-4-NE	24	Anacostia River
Anacostia River	F-562-RS-1-2-NE	24	Watts Branch
Rock Creek	F-357-EF-33-34-NW	36	Portal Branch
Rock Creek	F-186-IK-11-12-NW	24	Normanstone Creek
Rock Creek	F-139-IK-19-20-NW	24	Broad Branch
Rock Creek	F-91-IK-29-30-NW	54	Pinehurst Branch (Tributary to)

Receiving Water Monitoring Locations

Receiving water monitoring locations were randomly selected with the GRTS procedure using Strahler order and ecoregion for stratification purposes.

A total of 52 (26 primary targets and 26 oversample locations) sample sites were selected. The number of sites per stratum was scaled by the total length of qualified stream. The strata and the stream length corresponding to each stratum are listed in Table A2-2. The oversamples sites are “back up” sites selected because of the potential for the primary targeted sites to be inaccessible or unfeasible.

Table A2-2. Receiving Water Strata Information				
Stratum	**Stream Order**	**Ecoregion**	**Sites + Oversamples**	**Total Length (miles)**
A	1	Eastern Piedmont	8+8	19.8
B	2	Eastern Piedmont	4+4	10.1
C	3	Eastern Piedmont	2+2	4.1
D	4	Eastern Piedmont	1+1	0.1
E	1	Coastal Plains	5+5	11.8
F	2	Coastal Plains	5+5	12.7
G	3	Coastal Plains	1+1	2.3

GRTS was applied on a continuous scale along all hydrolines in the Hydroline.ply (accessed through DC OCTO), with the following exceptions:

- Stream segments which have a stream order greater than four.
- The C&O Canal was excluded because it does not share typical characteristics with other receiving waters.

All other hydrolines were potential sampling locations. The results of the GRTS sampling process for receiving water monitoring are shown in Figure A2-2 and locations are identified in Table A2-3.

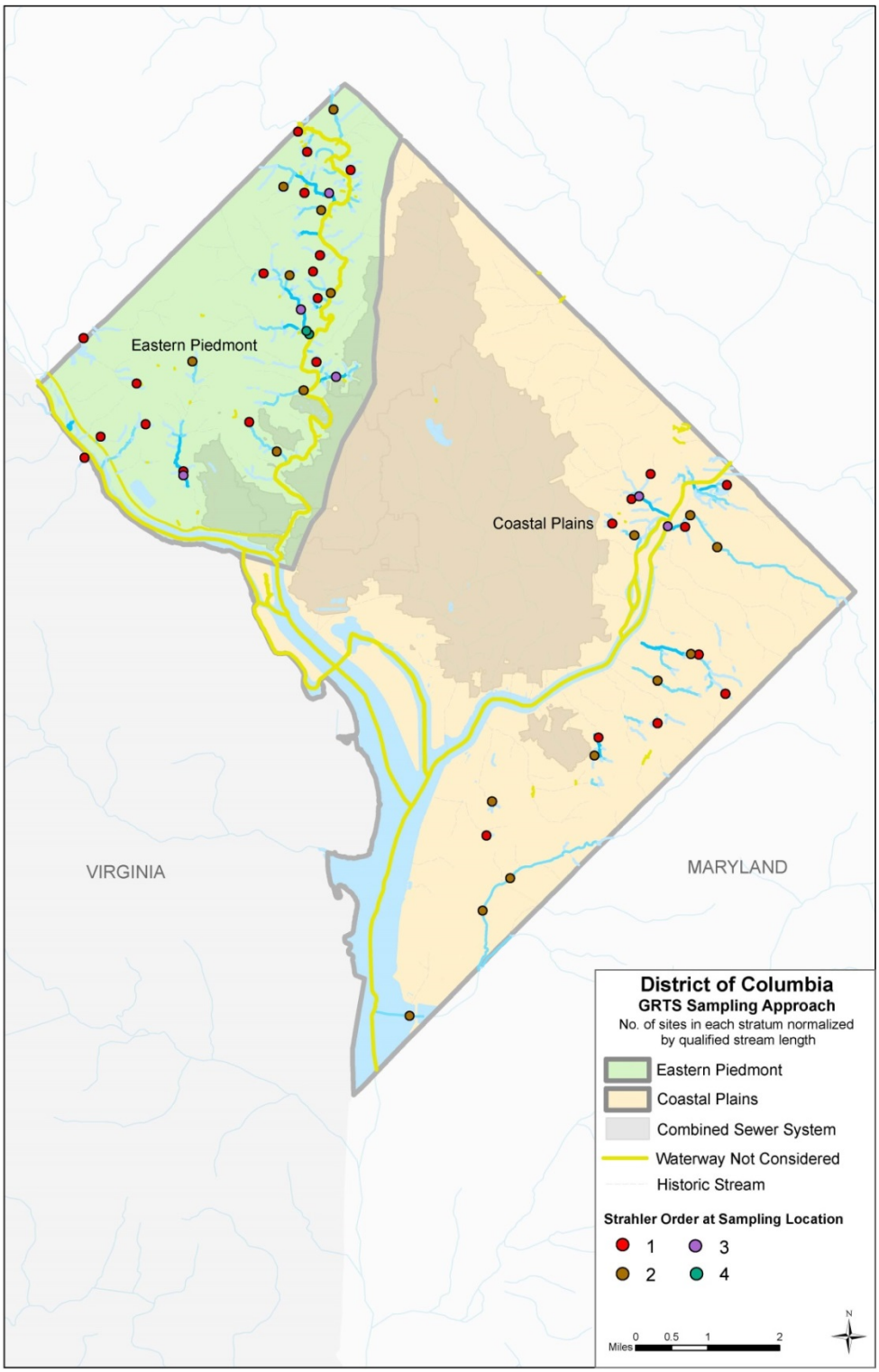

Figure A2-2. GRTS generated Receiving Water Monitoring Locations

Table A2-3. GRTS Generated Receiving Water Monitoring Location Details.				
Strahler Stream Order	**Ecoregion**	**Receiving Water**	**Longitude**	**Latitude**
1	Eastern	Rock Creek (Unnamed Tributary to)	1298702.	468092.
1	Eastern	Potomac (Unnamed Tributary to)	1288848.	455391.
1	Eastern	Battery Kemble Creek (Unnamed Tributary	1286082.	458838.
1	Eastern	Rock Creek (Unnamed Tributary to)	1297922.	478832.
1	Eastern	Rock Creek (Unnamed Tributary to)	1298870.	471249.
1	Eastern	Potomac (Unnamed Tributary to)	1281602.	456383.
1	Eastern	Potomac (Unnamed Tributary to)	1285430.	461835.
1	Eastern	Pinehurst Branch (Unnamed Tributary to)	1297720.	475832.
1	Eastern	Rock Creek (Unnamed Tributary to)	1298360.	470041.
1	Eastern	Normanstone Creek	1293698.	459007.
1	Eastern	Broad Branch (Unnamed Tributary to)	1294727.	469905.
1	Eastern	Rock Creek (Unnamed Tributary to)	1301138.	477506.
1	Eastern	Rock Creek (Unnamed Tributary to)	1298610.	463404.
1	Eastern	C&O Canal (Unnamed Tributary to)	1282795.	457933.
1	Eastern	Unnamed Dalecarlia Tributary	1281535.	465173.
1	Eastern	Rock Creek (Unnamed Tributary to)	1297269.	480318.
2	Eastern	Pinehurst Branch (Unnamed Tributary to)	1296193.	476262.
2	Eastern	Bingham Run	1298979.	474554.
2	Eastern	Broad Branch (Unnamed Tributary to)	1296658.	469776.
2	Eastern	Normanstone Creek	1295704.	456850.
2	Eastern	Fenwick Branch	1299861.	481945.
2	Eastern	Rock Creek (Unnamed Tributary to)	1299679.	468467.
2	Eastern	Klingle Valley Run	1297664.	461333.
2	Eastern	Foundry Branch	1289516.	463454.
3	Eastern	Broad Branch	1297478.	467273.
3	Eastern	Pinehurst Branch	1299544.	475810.
3	Eastern	Piney Branch	1300042.	462324.
3	Eastern	Potomac (Unnamed Tributary to)	1288856.	455095.
4	Eastern	Broad Branch	1298096.	465441.
4	Eastern	Broad Branch	1297889.	465693.
1	Coastal Plains	Hickey Run (Unnamed Tributary to)	1321737.	453350.
1	Coastal Plains	Watts Branch (Unnamed Tributary to)	1325658.	451307.
1	Coastal Plains	Anacostia (Unnamed Tributary to)	1311086.	428680.

Table A2-3. GRTS Generated Receiving Water Monitoring Location Details.				
Strahler Stream Order	**Ecoregion**	**Receiving Water**	**Longitude**	**Latitude**
1	Coastal Plains	Fort Stanton (Unnamed Tributary to)	1319312.	435861.
1	Coastal Plains	Hickey Run (Unnamed Tributary to)	1323135.	455184.
1	Coastal Plains	Fort Dupont	1328614.	439074.
1	Coastal Plains	Anacostia (Unnamed Tributary to)	1320315.	451543.
1	Coastal Plains	Unnamed Texas Avenue Tributary to)	1323635.	436928.
1	Coastal Plains	Fort Dupont (Unnamed Tributary to)	1326681.	441951.
1	Coastal Plains	Nash Run (Unnamed Tributary to)	1328737.	454377.
2	Coastal Plains	Watts Branch	1328010.	449828.
2	Coastal Plains	Anacostia (Unnamed Tributary to)	1321929.	450676.
2	Coastal Plains	Fort Stanton	1319023.	434533.
2	Coastal Plains	Oxon Run	1305449.	415444.
2	Coastal Plains	Popes Branch	1323634.	440019.
2	Coastal Plains	Oxon Run	1310811.	423170.
2	Coastal Plains	Watts Branch	1326043.	452162.
2	Coastal Plains	Anacostia (Unnamed Tributary to)	1311498.	431174.
2	Coastal Plains	Fort Dupont	1326090.	441978.
2	Coastal Plains	Oxon Run	1312835.	425538.
3	Coastal Plains	Watts Branch	1324392.	451340.
3	Coastal Plains	Hickey Run	1322286.	453544.

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APPENDIX 3:

Statistical Analysis of Wet Weather Outfall Monitoring

Memorandum

From: B. Crary, H. Bourne, K. Ridolfi
R. O'Banion

Date: 03/26/2015

Project: DDOEIP

To: J. Champion

CC: Click here to enter text.

SUBJECT: Wet Weather Monitoring Statistical Analysis

Abstract

District Department of Environment's (DDOE's) municipal separate storm sewer system (MS4) permit requires that wet weather monitoring data be sufficient to ensure that the data are "statistically significant and interpretable". Sampling power estimates were performed to demonstrate the number of samples required to significantly detect changes from baseline wet weather monitoring sample data. Twenty-five percent changes in the means of Total Nitrogen, Total Phosphorus, Copper, and Zinc in the Anacostia watershed, Potomac watershed, and Rock Creek watershed can be detected significantly with power of 0.8 with 67, 45, 159, 63, 292, and 109 samples, respectively. The maximum power achievable for 25% change detection is 0.74 for Lead and 0.41 for Fecal Coliform Bacteria. The maximum powers achievable for TSS in the Anacostia watershed, Potomac watershed, and Rock Creek watershed are 0.77, 0.60, and 0.56, respectively. High variability in wet weather monitoring contributes to the high level of effort required to detect fine changes, particularly in the cases of Lead and Fecal Coliform Bacteria.

Power and Sample Size Calculations for Post-Implementation Outfall Monitoring

DDOE's MS4 permit requires that a revised monitoring program be developed that allows the District to make wet weather loading estimates and conduct wasteload allocation tracking. A key component of this requirement is that the "number of samples, sampling frequency and number and locations of sampling stations must be adequate to ensure data are statistically significant and interpretable" (EPA 2011). To ensure that the revised monitoring sampling plan for wet weather events is statistically significant, a power analysis was completed. The analysis uses all available water quality data collected by DDOE at outfalls from 2001 to 2013. With these data, a statistical approach was used to determine the number of samples required to detect statistically significant differences between baseline (first year of permit cycle, 2016) and at the end of the permit cycle (2019, hereafter referred to as "post-implementation") samples for differences of 5%, 10%, and 25% of the baseline mean.

Baseline Outfall Monitoring Data

Applicable baseline data has been collected by DDOE at monitoring locations across the District's MS4 dating back to 2001. Samples have been collected and measured from the drainage sites at various waterways which feed into the Anacostia River, the Potomac River, and Rock Creek. Prior to performing a power analysis, an Analysis of Variance (ANOVA) was used to determine that significant differences ($p<0.05$) across the watersheds existed only for Total Suspended Solids (TSS) and Zinc. Concentrations of TSS and Zinc were grouped accordingly prior to performing the power analysis. For each remaining pollutant of interest (those that are required in the permit to be monitored for wet weather, Table 3-2), samples taken from different watersheds were grouped and treated as a single sample set, since no underlying differences could be detected.

Two – Sample Independent t-test

It was assumed that post-implementation monitoring samples will be compared to the baseline sample set using a two-sample independent t-test. This approach assumes no temporal variability between samples taken from either population. Underlying differences in the sample populations can be identified by comparing the sample set means and testing the null hypothesis:

$$H_o = \mu_{pre,i} - \mu_{post,i} = 0$$

Where: $H_o = null\ hypothesis$

$\mu_{pre,i} = Pre - implentation\ event\ mean\ concentration\ of\ pollutant\ i$

$\mu_{post,i} = Post - implentation\ event\ mean\ concentration\ of\ pollutant\ i$

One of the assumptions of a t-test is that the underlying population distributions are normal, thus several pollutant were transformed to satisfy this assumption. See Table A3-1 for summary of transformations for each pollutant.

Table A3-1. Normalization transformations

Pollutant	Transformation
Total Suspended Solids (Anacostia)	Natural Log
Total Suspended Solids (Potomac)	Natural Log
Total Suspended Solids (Rock Creek)	Natural Log
Total Nitrogen	Power, λ = 0.5454
Total Phosphorus	Power, λ = 0.3434
Copper	Natural Log
Fecal Coliform Bacteria	Natural Log
Lead	None
Zinc (Anacostia)	Power, λ = 0.4646
Zinc (Potomac)	Power, λ = 0.4646
Zinc (Rock Creek)	Power, λ = 0.4646

Using a predefined Type I error rate of 0.05 (5% probability of erroneously rejecting the null hypothesis), the null hypothesis will either be rejected or accepted using by calculating the test statistic, t, and comparing it to $t_{\alpha,0.05}$ (Zar 1999). The t-test should be a "one-sided" test because the test should be performed with an alternative hypothesis that $\mu_{pre,i} > \mu_{post,i}$. It is anticipated that the post-implementation event mean concentration will be less than the baseline event mean concentration.

Power and Type II Error

Common convention is to predefine an acceptable level of risk for a Type I error, usually 5%, but this convention does not address situations in which there is an erroneous failure to reject the null hypothesis (Type II error). In terms of MS4 monitoring, a Type II error would be a failure to detect a true underlying difference in the pre- and post-implementation sample means. In the case of a t-test, statistical power refers to the probability of detecting a difference in means when it truly exists:

$$Power = 1 - \beta$$

Where: $\beta = probability\ of\ committing\ a\ Type\ II\ error$

Conventionally, an "acceptable" Beta is considered 20%. This translates to a statistical power of 0.80. As a general rule, power will increase with increasing sample sizes.

Monitoring Variables

As the requirement to develop a Revised Monitoring Program does not include specific expectations for program design, the time frame in which statistically significant differences must be identified is also undefined. Additionally, the number of samples that must be taken and the number of sites at which samples must be taken are also variables included in this assessment.

Although the sample size requirement equation depends only on *n, n* is dependent upon the number of sites chosen, the number of sampled events per year, and the number of years the sampling will take place. This relationship can be expressed as:

$$n = n_{ss} n_{sy} n_{se}$$

Where: $n = number\ of\ monitoring\ samples$

$n_{ss} = number\ of\ sample\ sites$

$n_{sy} = number\ of\ sampling\ years$

$n_{se} = number\ of\ sampling\ events\ per\ year$

The number of sample sites was evaluated at 5, 10, and 15 years, and *n* was calculated for $n_{sy} = 1$ through $n_{sy} = 30\ years$.

Power Estimates for Variable Sample Size

Power estimates were calculated for a range of post-implementation sample sizes using the 'pwr' package in R (Champely 2012). The calculation was performed using the 'pwr.t2n.test' command, which is derived from the method described by Cohen (1988). This calculation was performed on a fixed

baseline sample size, variable post-implementation sampling size, and variable effect size, where effect size is defined as:

$$d = \frac{|\mu_{pre,i} - DL * \mu_{pre,i}|}{\sigma}$$

Where: $\sigma = standard\ deviation$

$$DL = Detection\ level\ (0.95, 0.90, or\ 0.75\ based\ on\ desired\ detectable\ difference)$$

If concentrations were transformed to meet the normal assumption for the t-test, then *d* was defined as (using natural log transformation as example):

$$d = \frac{|\ln(\mu_{pre,i}) - \ln(DL * \mu_{pre,i})|}{\sigma_{tranformed}}$$

Where: $\sigma_{tranformed} = standard\ deviation\ of\ the\ transformed\ dataset$

It was also assumed that the baseline and post-implementation standard deviations were equal. Cohen's effect size is a better indicator of whether a specified detection difference (e.g. 5%, 10% or 20%) because the variability of the data is considered. Cohen suggests that, for general cases, effect sizes of 0.2, 0.4, and 0.6 be considered for detection of small, medium, and large changes, respectively (Cohen 1988).

Results and Discussion

Using the power equations and variables described above, a series of plots were developed to show the relationship between statistical power and number of sample years. Curves for Total Nitrogen, Total Phosphorus, Total Suspended Solids, Copper, Fecal Coliform Bacteria, Lead, and Zinc are seen in Figures A3-1 through 11[5]. Baseline population characteristics and effect sizes are provided for each pollutant in Table A3-2

Table A3-2. Pollutant sample population characteristics

Pollutant	Mean (mg/l)	Standard Dev.	Effect size, d (5%)	Effect size, d (10%)	Effect size, d (25%)
Total Nitrogen	3.71	3.12	0.07	0.14	0.35
Total Phosphorus	0.41	0.32	0.08	0.16	0.41
Total Suspended Solids	107.72	161.37	0.05	0.10	0.27

[5] Note that Cadmium is not yet included in this analysis. The database upon which this analysis was based was that which was used to develop EMCs for the TMDL IP Modeling effort. Because there are no TMDLs for Cadmium in the District, this parameter has not yet been included in the database. Once the database is revised with these data, this statistical analysis will also be calculated for this parameter.

Table A3-2. Pollutant sample population characteristics					
Pollutant	**Mean (mg/l)**	**Standard Dev.**	**Effect size, d (5%)**	**Effect size, d (10%)**	**Effect size, d (25%)**
(Anacostia)					
Total Suspended Solids (Potomac)	52.01	76.78	0.04	0.09	0.24
Total Suspended Solids (Rock Creek)	76.50	119.80	0.04	0.09	0.23
Copper	0.38	0.18	0.04	0.10	0.26
Fecal Coliform Bacteria	22963 (MPN/100 ml)	55143 (MPN/100 ml)	0.02	0.05	0.13
Lead	0.03	0.04	0.03	0.06	0.16
Zinc (Anacostia)	0.12	0.14	0.08	0.16	0.41
Zinc (Potomac)	0.07	0.10	0.07	0.13	0.35
Zinc (Rock Creek)	0.07	0.10	0.07	0.15	0.38

The small effect sizes calculated for 5%, 10%, and 25% changes in the population means reflect the very large standard deviation for each pollutant. Comparing these effect sizes to 0.2, Cohen's threshold for detecting small changes, it is not surprising that such large sample sizes are required to detect changes in the mean. With the current monitoring data, detecting 5% and 10% changes with power of 0.8 is not possible. However, statistically significant changes of 25% in the means of Total Nitrogen, Total Phosphorus, Total Suspended Solids, Copper, and Zinc can each be detected with 293 or fewer samples (Table A3-3).The standard deviations of Fecal Coliform Bacteria and Lead are large enough that the highest powers achievable for 25% change detection are approximately 0.41 and 0.74, respectively.

Table A3-3. Required samples to detect 25% change in mean concentration for power = 0.80			
Pollutant	**No. of existing measurements**	**Minimum No. of samples to detect 25% change***	**No. of years to collect samples**
Total Nitrogen	200	67	7.4
Total Phosphorus	203	45	5.0
Total Suspended Solids (Anacostia)	78	N/A[1]	N/A
Total Suspended Solids (Potomac)	61	N/A[2]	N/A
Total Suspended Solids (Rock Creek)	59	N/A[3]	N/A
Copper	212	159	5.9
Fecal Coliform Bacteria	121	N/A[4]	N/A
Lead	205	N/A[5]	N/A
Zinc (Anacostia)	93	63	7.0
Zinc (Potomac)	61	293	32.6
Zinc (Rock Creek)	66	109	12.1

[1]No appreciable gains in power beyond 4,500 samples (power approximately 0.77)
[2]No appreciable gains in power beyond 7,900 samples (power approximately 0.60)
[3]No appreciable gains in power beyond 2,700 samples (power approximately 0.56)
[4]No appreciable gains in power beyond 5,000 samples (power approximately 0.41)
[5]No appreciable gains in power beyond 6,000 samples (power approximately 0.74)
*Gains no longer considered appreciable when power can be rounded to the same hundredth of the maximum attainable power.

This level of effort to detect changes in concentration was not unexpected. Other similar studies have come to the same conclusion. For example, the San Diego County MS4 co-permittees (SDCC) evaluated long-term effectiveness of the impacts of the MS4 program on water quality. As part of this effort the SDCC developed a power analysis, similar to that described above, which estimated that between 33 and 3,339 samples would be required to detect 10% changes in means for certain parameters (SDCC 2011). It was also determined that such detection was unlikely within one permit cycle. Ultimately, the large variability of wet weather monitoring data contributes to the difficulty in detecting subtle changes in pollutant concentrations.

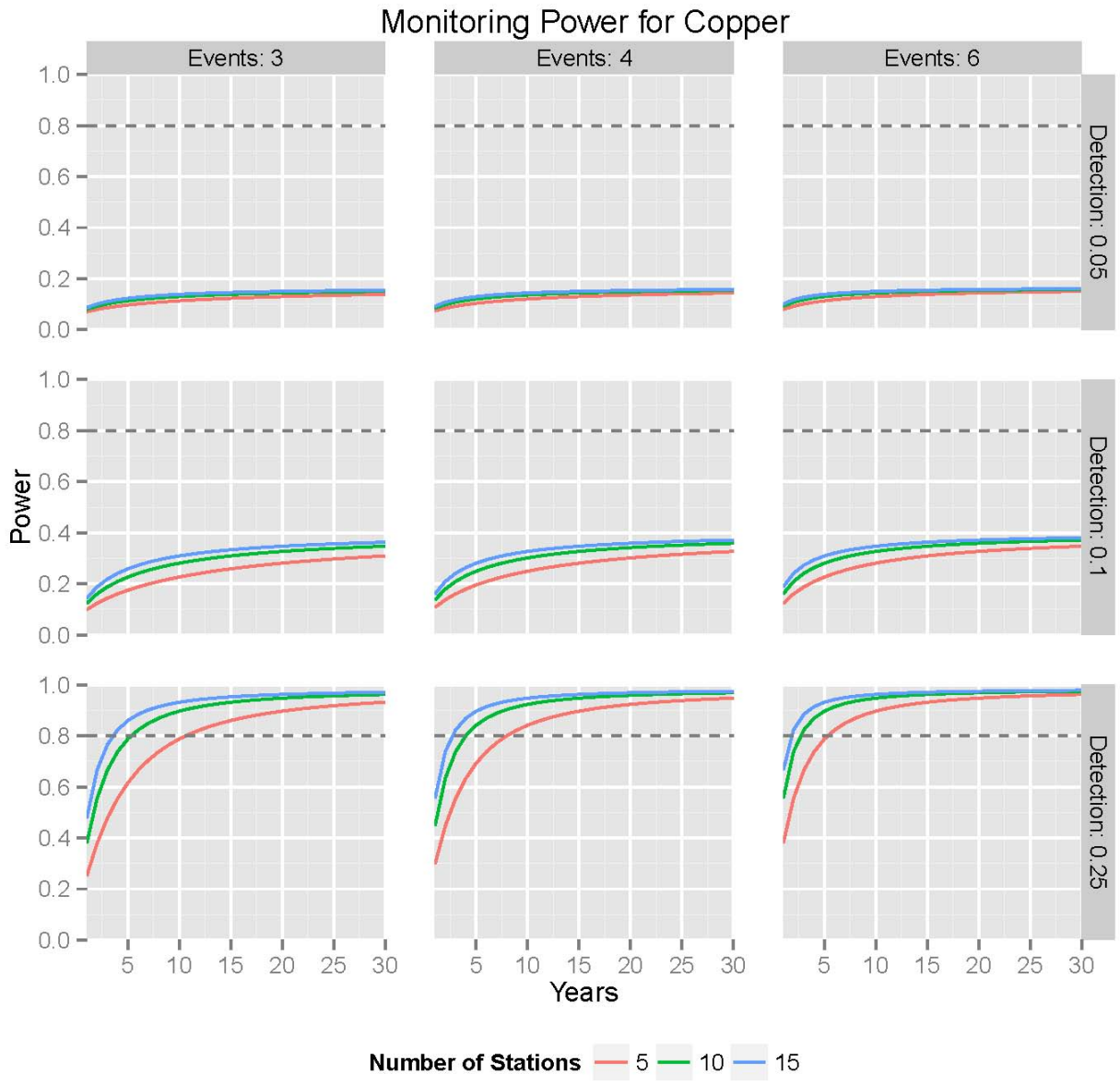

Figure A3-1. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Copper concentrations

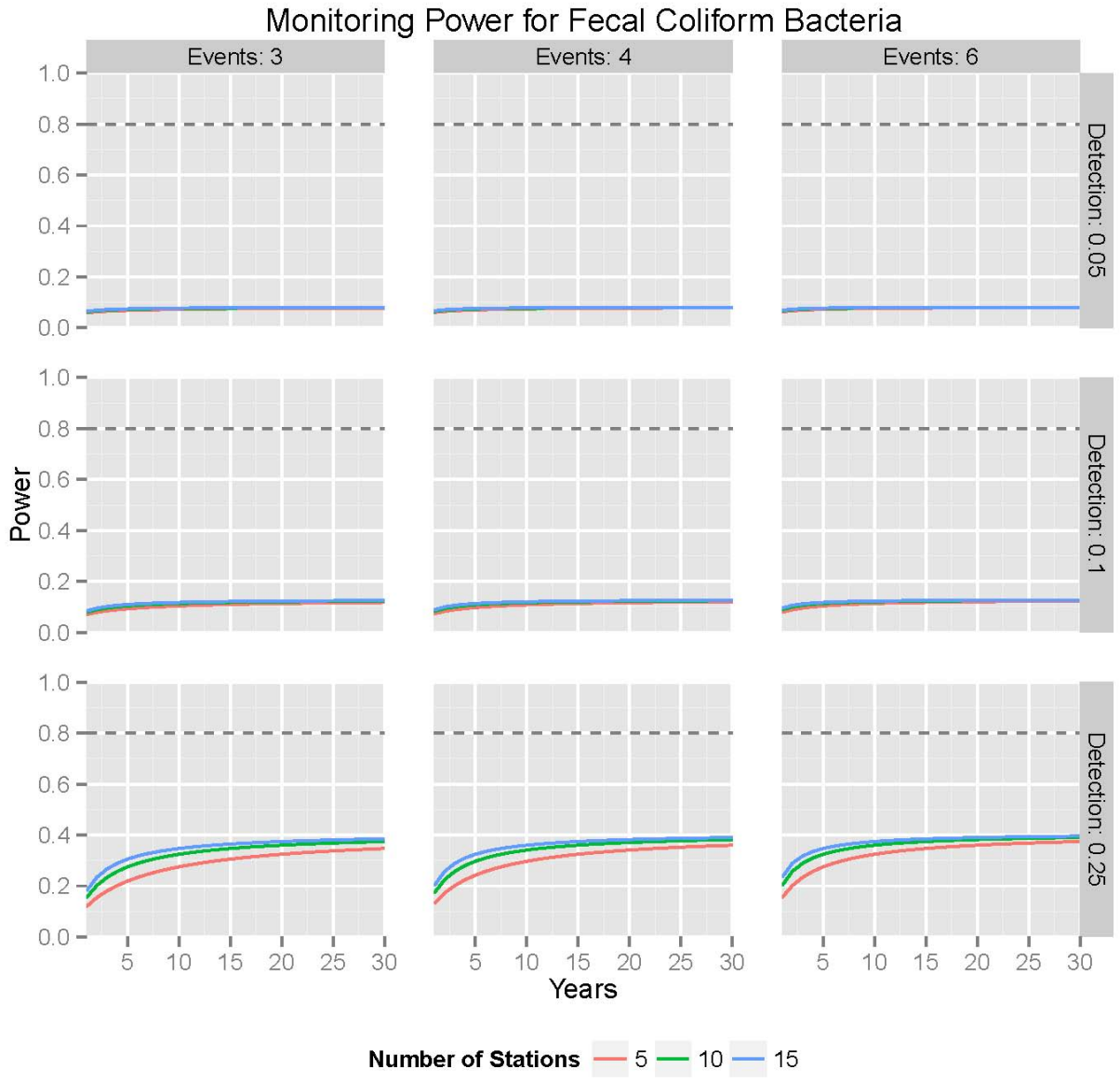

Figure A3-2. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Fecal Coliform Bacteria concentrations

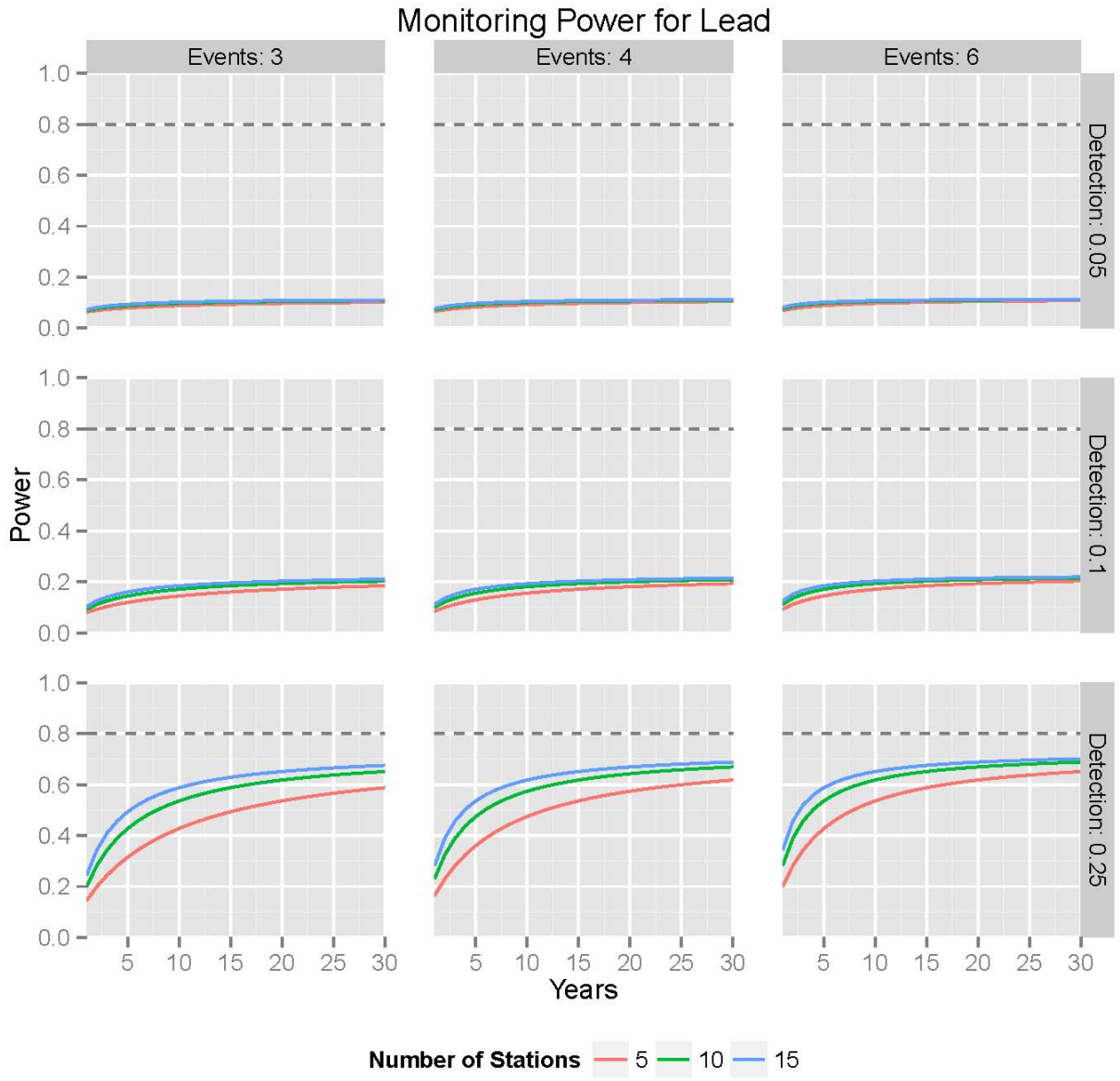

Figure A3-3. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Lead concentrations

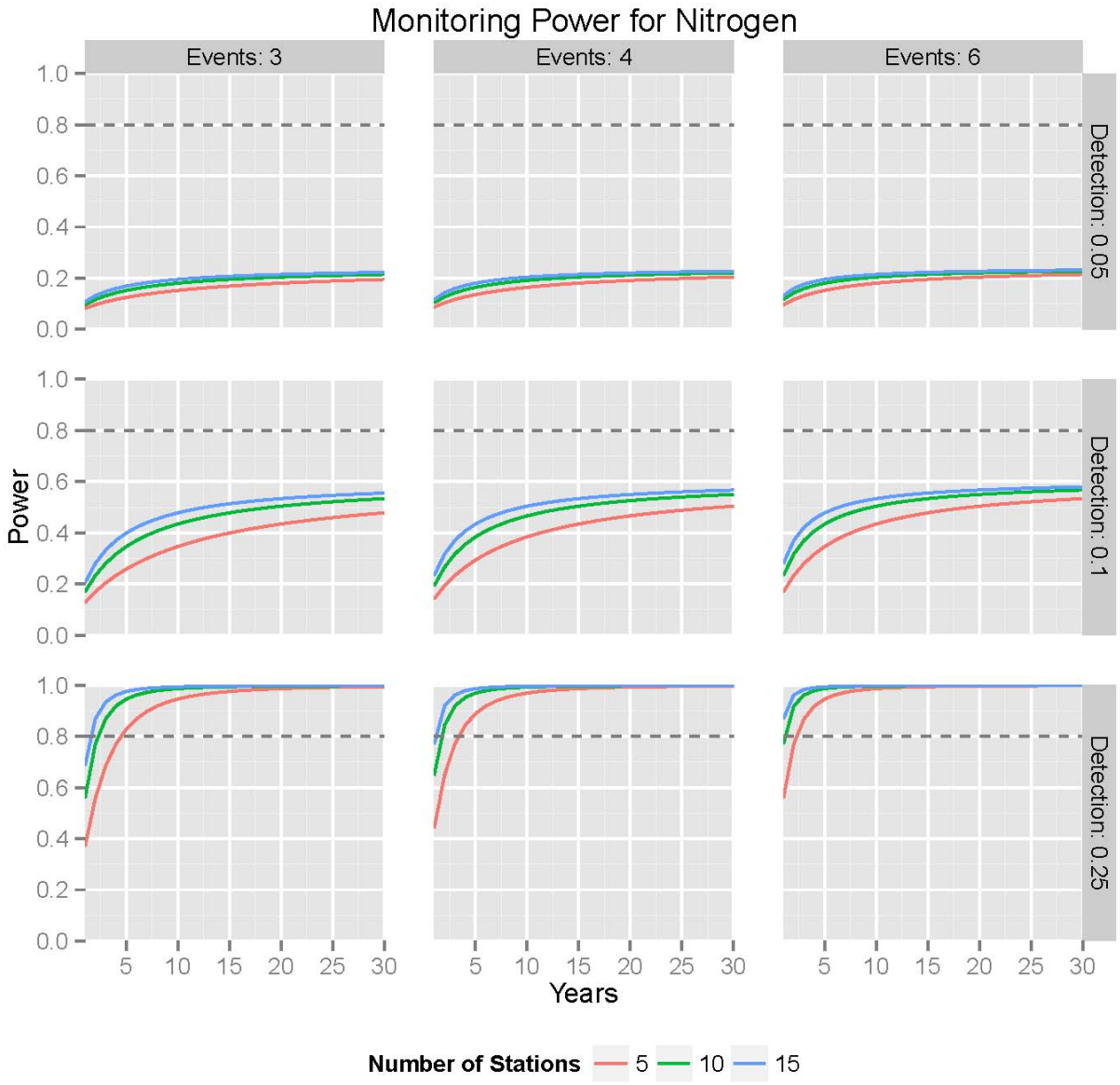

Figure A3-4. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Total Nitrogen concentrations

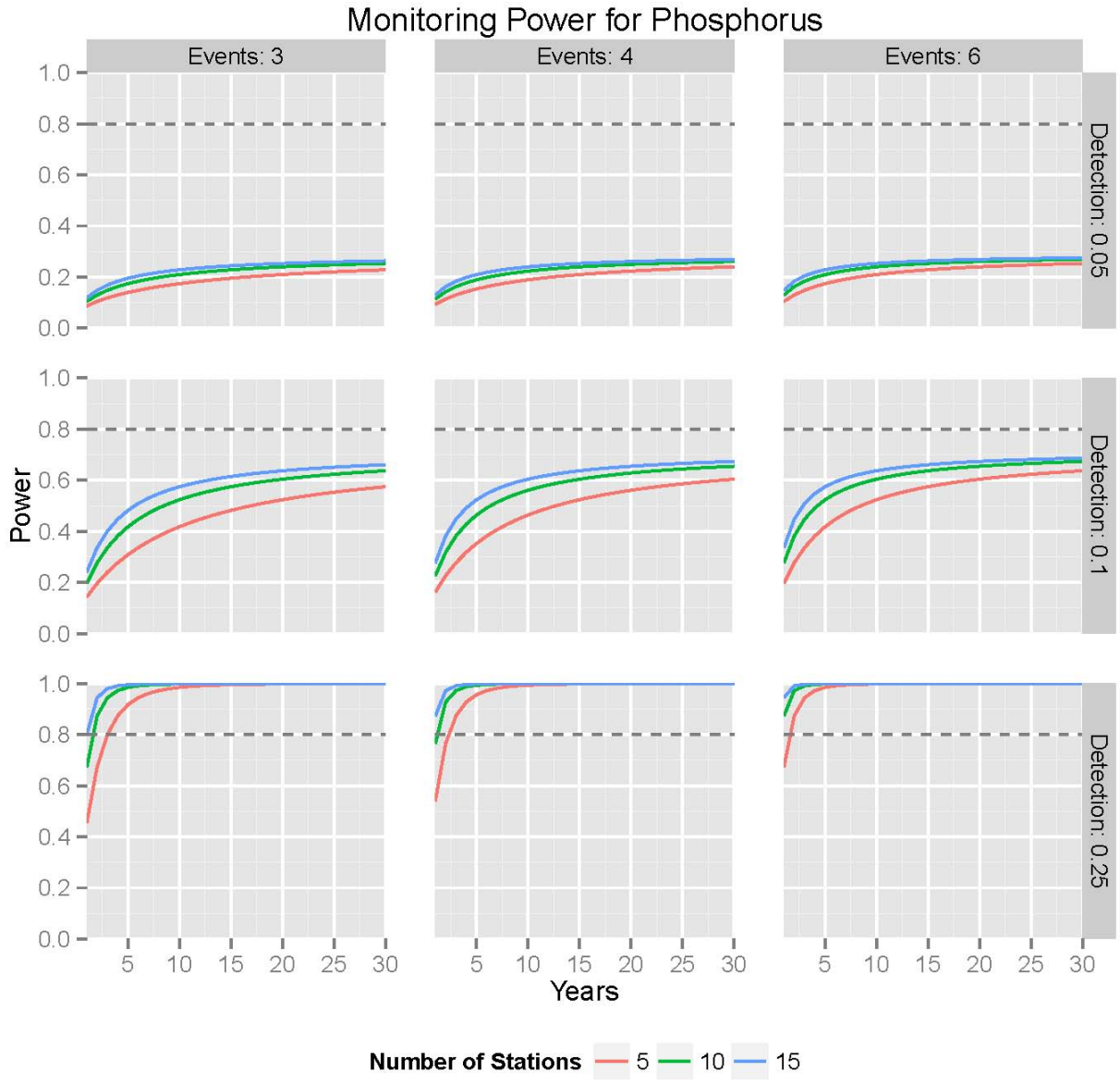

Figure A3-5. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Total Phosphorus concentrations

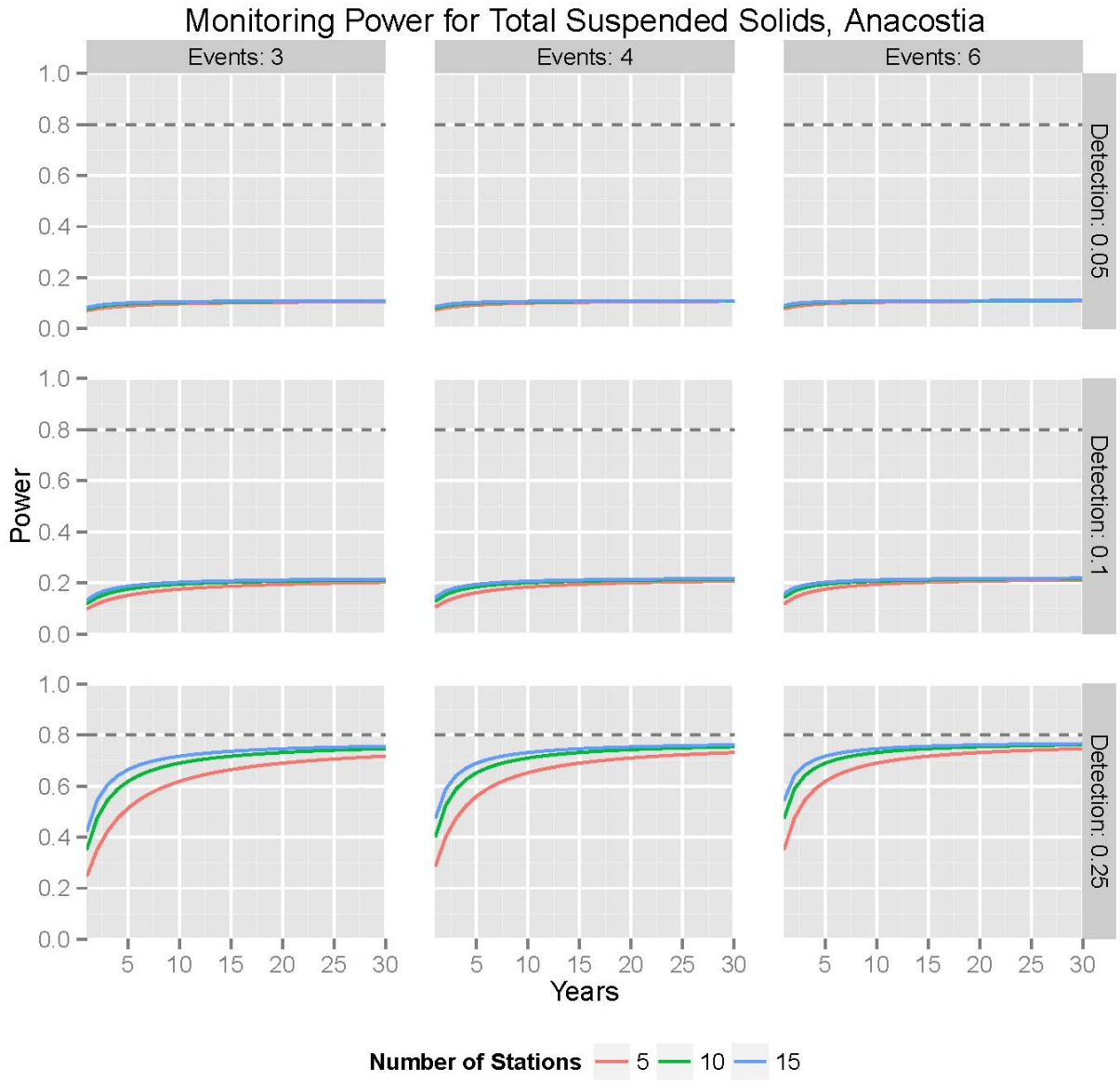

Figure A3-6. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Total Suspended Sediment concentrations in the Anacostia watershed

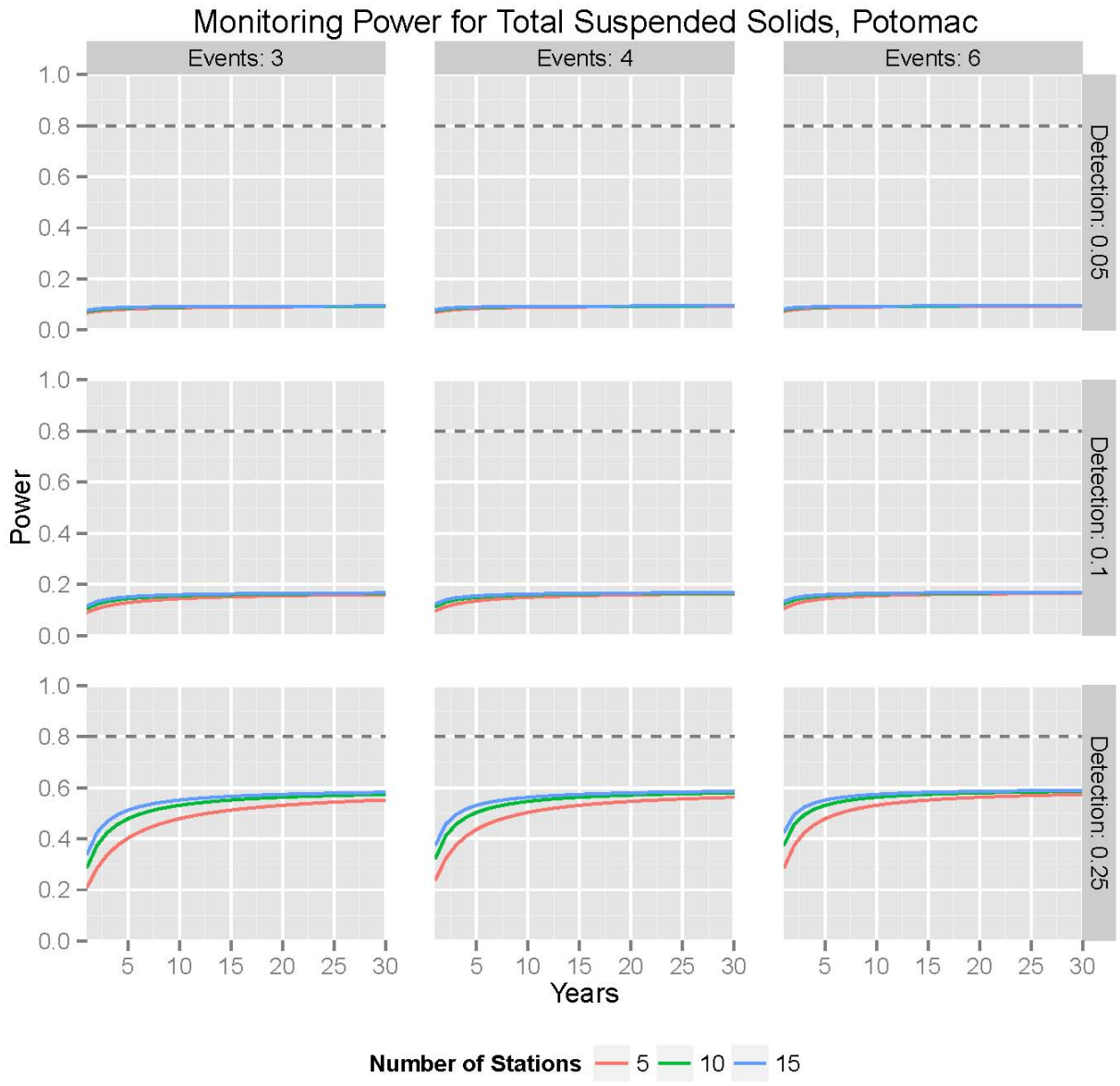

Figure A3-7. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Total Suspended Sediment concentrations in the Potomac watershed

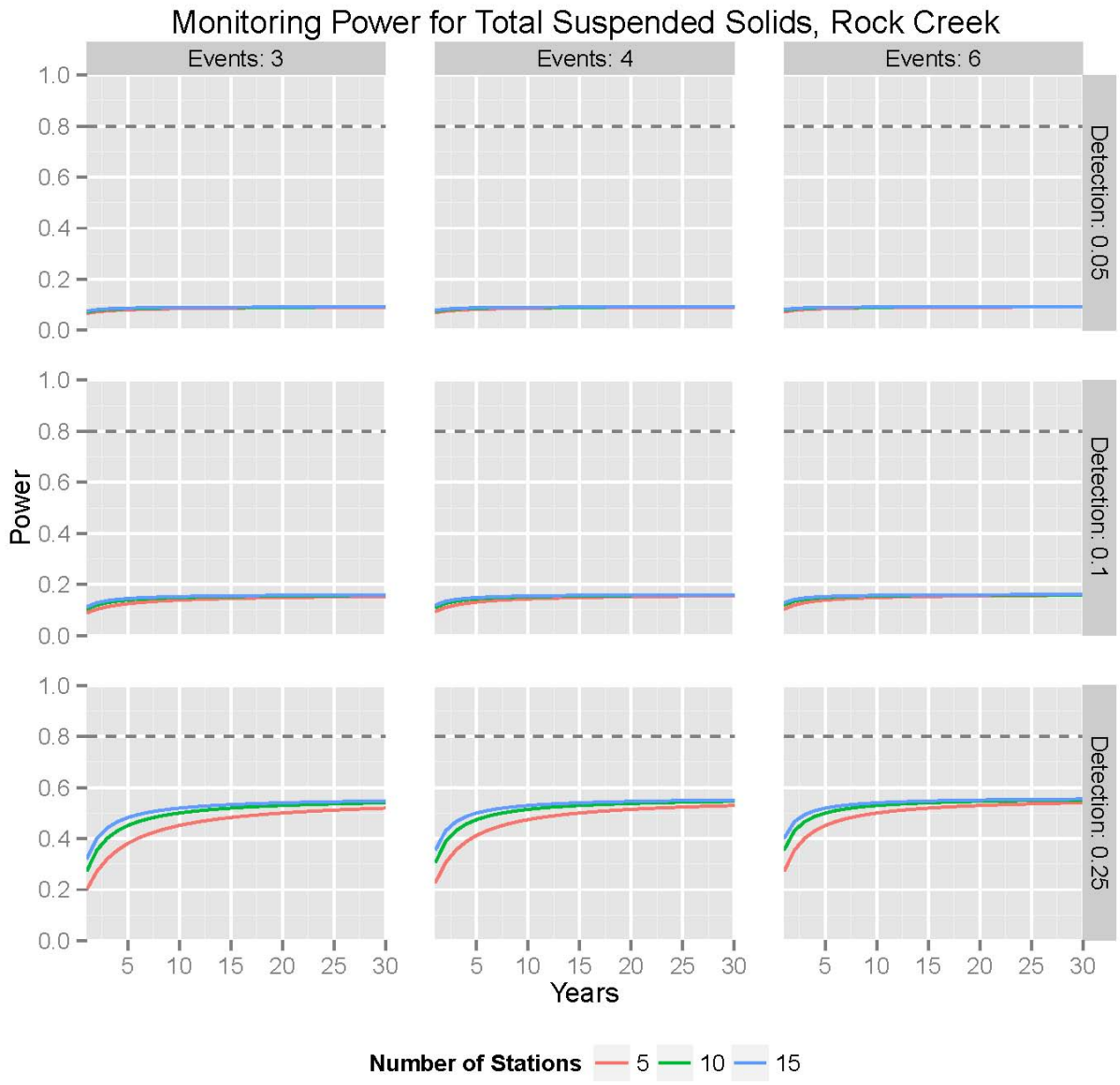

Figure A3-8. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Total Suspended Sediment concentrations in the Rock Creek watershed

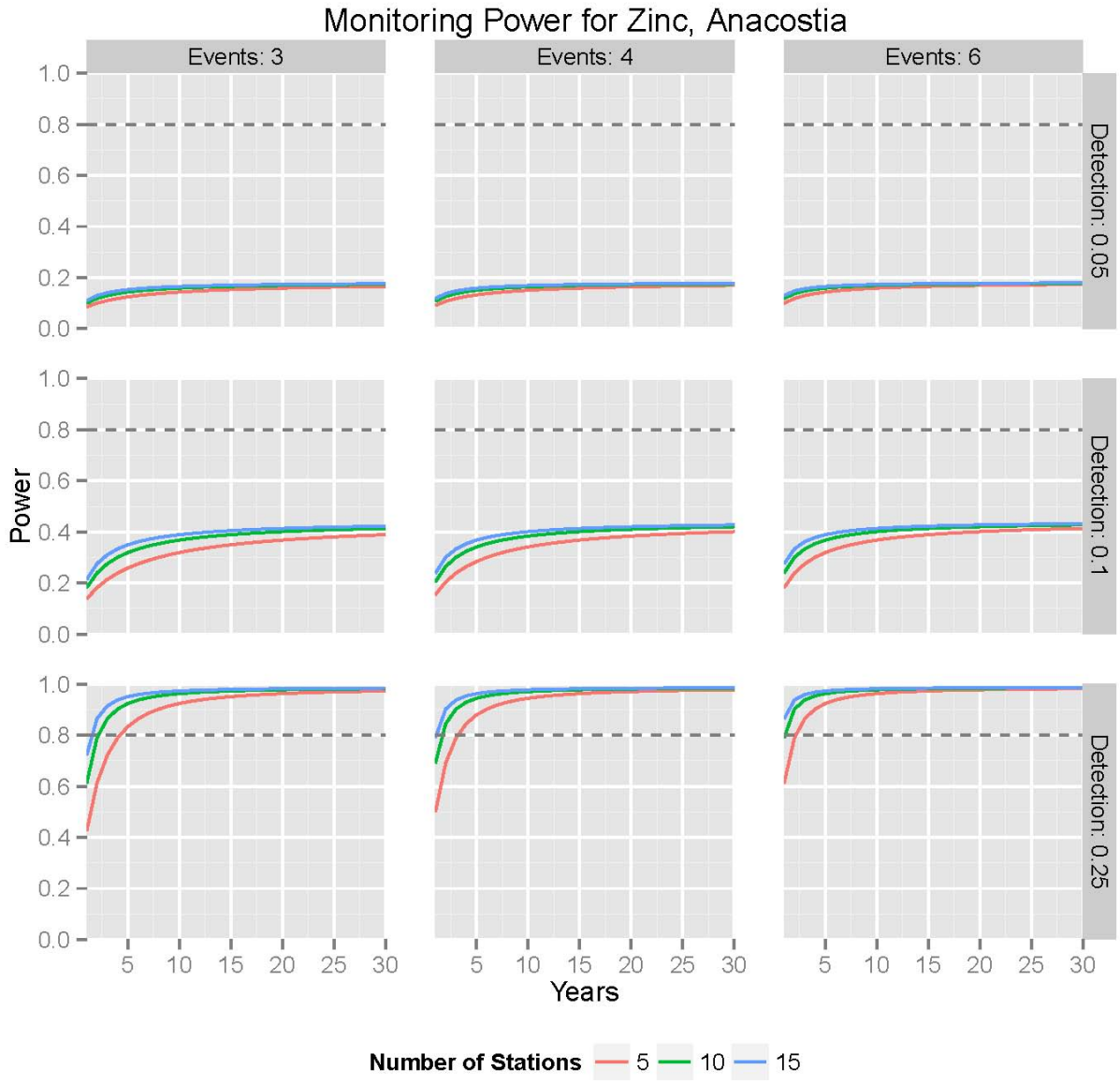

Figure A3-9. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Zinc concentrations in the Anacostia watershed

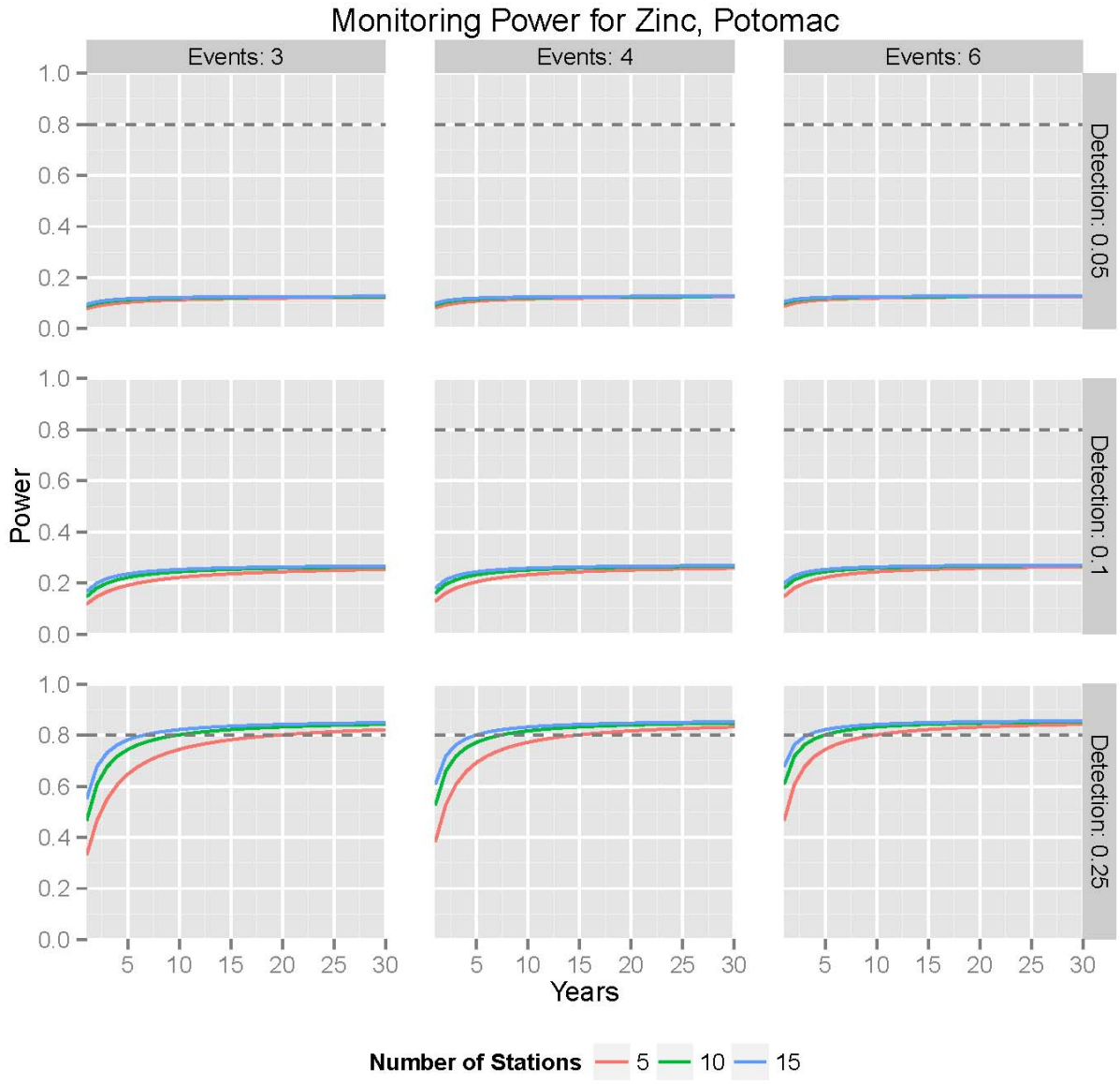

Figure A3-10.: Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Zinc concentrations in the Potomac watershed

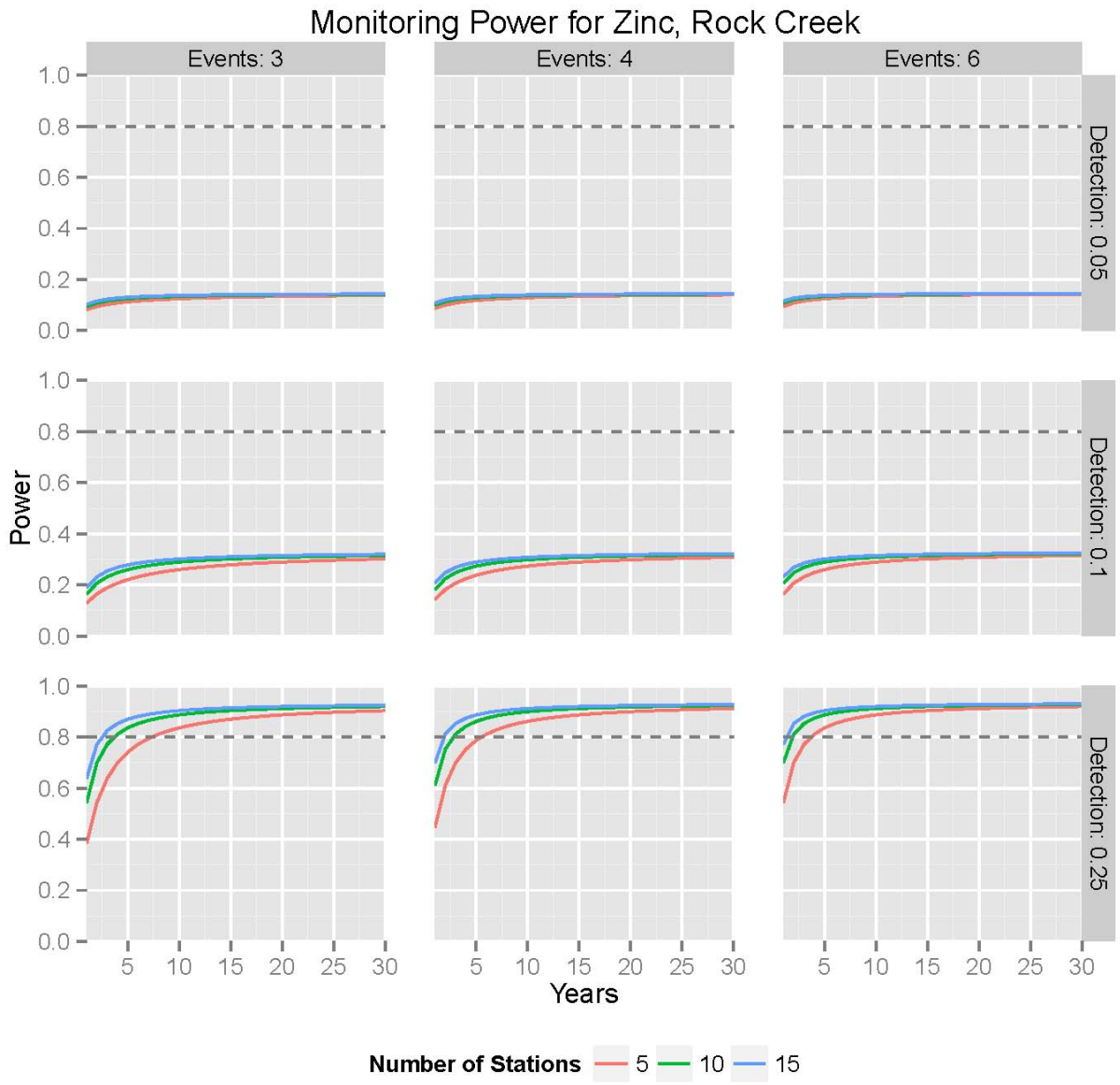

Figure A3-11. Power estimates for event and station combinations, shown for detectable differences of 5%, 10%, and 25% between the baseline and post implementation means of Zinc concentrations in the Rock Creek watershed

References

Jacob Cohen (1988). Statistical Power Analysis for the Behavioral Sciences. 2nd Edition. Routledge, London, UK.

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EPA (2011). Authorization to Discharge under the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit. NPDES Permit No. DC0000221.

APPENDIX 4:

Receiving Water Monitoring Statistical Analysis

Memorandum

From: B. Crary, H. Bourne, B. Udvardy

Date: 3/26/2015

Project: Click here to enter text.

To: J. Champion
Click here to enter text.

CC: Click here to enter text.

SUBJECT: **Receiving Water Monitoring Statistical Analysis**

Summary

District Department of Environment's (DDOE's) municipal separate storm sewer system (MS4) permit requires that the health of the receiving waters be evaluated using biological and physical indicators, and that the number of samples, sample frequency, and sampling locations be adequate to ensure that the data are "statistically significant and interpretable" for the detection of long-term trends.

Sampling power estimates were performed with a Mann Kendall test to demonstrate the number of samples required to significantly detect linear trends in concentration. If monthly sampling occurs, true changes of 10% of the original mean per year or greater would be identified within two permit cycles (10 years) at 23 of DDOE's existing 30 monitoring stations with 80% power. This change is not identifiable within 10 years at seven stations because these stations have relatively high variability of concentrations, which makes it difficult to discern trends quickly. More frequent sampling will reduce the overall time required to detect trends of this magnitude. The detection of finer changes (<10%/year) would require an increasingly large number of samples to be statistically significant.

Power and Sample Size Calculations for Long-term Trend Detections of Receiving Waters

DDOE's MS4 permit requires that a monitoring program be developed to allow the District to evaluate the biological and physical health of receiving waters. This permit requires that the number monitoring samples, frequencies, and locations be sufficient to ensure the statistical significance and interpretability of long-term trends (EPA 2011). A power analysis was completed to estimate the number of samples needed to meet this requirement. The analysis uses receiving water quality data previously collected by DDOE at 30 monitoring sites from 2001 to 2013. With these data, a statistical approach was used to determine the number of samples required to detect statistically significant trends of various magnitudes after the implementation of the MS4 program (herein referred to as "post-implementation").

Magnitude of Change

Receiving water monitoring data variability is high within this particular dataset (mean coefficient of variation = 0.97; Table A4-1). Early detection of small trends is made difficult by the high standard deviations compared to the station means, and thus, 10%/year changes from the original mean is defined here as a "small trend". Changes of this magnitude may be unlikely to be truly occurring, particularly in the early stages of implementation of MS4 programs and practices, but changes of this size may be observed within a reasonable return period (~10 years for each station if monthly sampling occurs). Thus, changes of 10%/year were chosen as a statistical model for this analysis, although an exploration of this variable is presented in Table A4-3 later in this document.

Table A4-1. Station Receiving Water Monitoring Summary Data

Station	n	Mean TSS (mg/L)	Standard Dev.	Current Trend Slope*	Is Current Trend Significant?**
ANA01	141	17.67	11.07	-0.67	Yes
ANA05	81	19.73	9.63	-0.77	Yes
ANA08	96	23.12	11.41	-0.23	No
ANA11	80	23.71	10.73	-0.70	Yes
ANA14	170	23.36	19.36	-0.60	Yes
ANA19	88	17.44	11.56	0.00	No
ANA21	171	15.70	11.60	-0.17	No
ANA24	86	13.64	12.06	0.23	No
ANA28	102	21.65	13.11	-0.24	No
ANA29	102	14.02	19.11	0.00	No
ANA30	92	12.29	8.78	0.00	No
PCW04	100	8.65	6.69	0.00	No
PTB01	69	9.48	5.58	-0.24	No
RCR01	66	18.97	43.96	0.00	No
RCR09	66	17.79	37.06	0.00	No
RCR12	69	10.33	7.78	-0.43	No
TCO01	53	8.68	7.00	0.39	No
TCO06	55	12.31	10.54	0.00	No
TMI01	32	7.78	14.08	0.00	No
DC-C1	28	29.14	61.22	-0.16	No
DC-C2	28	25.46	54.49	0.07	No
DC-C3	27	28.26	65.75	0.00	No
PMS01	48	6.92	5.46	0.00	No
PMS10	87	5.75	3.66	0.00	No
PMS21	86	6.58	5.04	0.00	No

Table A4-1. Station Receiving Water Monitoring Summary Data					
Station	n	Mean TSS (mg/L)	Standard Dev.	Current Trend Slope*	Is Current Trend Significant?**
PMS29	82	7.60	4.05	0.00	No
PMS37	49	8.45	4.06	0.00	No
PMS44	40	8.98	4.24	-0.21	No
PMS51	36	10.03	5.68	-0.49	Yes
PMS52	51	7.88	4.10	0.00	No

***Slope is based on Sen's Nonparametric estimate**

****Based on Mann-Kendall Test with existing data**

Statistical Test

As previously stated, a power analysis was performed to estimate the sample size required to detect trends of 10%/year of the station mean with a Mann-Kendall test. A significant trend is defined as have a Type-I error rate of less than 5%. Monte Carlo simulation was used to approximate the sample size required to detect changes of this magnitude with a Type-II error rate of 20% (Power = 80%), assuming that the sample frequency is once a month.

Pollutants of Interest

While the permit requires sample frequencies and locations sufficient to ensure statistical significance, no pollutants are specified for this permit requirement. Upon inspection of the existing monitoring data, it was concluded that TSS would be used for statistical analysis. TSS was chosen for the following reasons:

- TSS has a long and continuous record of concentrations at many sampling stations in each of the Districts three major watersheds.
- TSS commonly serves as a surrogate for the concentrations of other contaminants.
- There are TMDLs in place for TSS within the District.

Statistical Test

Mann – Kendall Trend

Sample size requirements to detect trends of 10% of the pre-implementation mean/year or greater were performed using Monte-Carlo simulation with the Mann-Kendall trend test (MK). The MK test is non-parametric test used to identify whether a monotonic trend exists. Because the test is non-parametric, no normal transformations need to be performed.

The null hypothesis of the MK test is that no monotonic trend exists, and this hypothesis is tested against the alternative that a monotonic trend does exist using the test statistic, Z_{mk}, where:

$$Z_{mk} = \frac{(S-1)}{\sqrt{VAR(S)}} \; if \; S > 0$$

$$Z_{mk} = 0 \; if \; S = 0$$

$$Z_{mk} = \frac{(S+1)}{\sqrt{VAR(S)}} \; if \; S < 0$$

The test statistic is computed using a sign indicator value, S, which compares how often later time points less than or greater than earlier time points. S is computed with the following equation:

$$S = \sum_{k-1}^{n-1} \sum_{j-k+1}^{n} sign(x_j - x_k)$$

Where: $S = sign\ indicator$

$n = number\ of\ samples$

$x = sample\ observation$

$j, k = sample\ time\ pairings\ in\ which\ j > k$

More simply, S is computed by determining the sign of the resulting difference between applicable sample pairings in which the earlier sample is subtracted from the later sample. There are n(n-1)/2 applicable pairings. The test statistic is the number of positive differences – the number of negative differences. A positive S value indicates that later observations are larger than the earlier observations (upward trend) and negative S value indicates that earlier observations are larger than later observations (downward trend).

The variance of S is given by:

$$VAR(S) = 1/18 \left[n(n-1)(2n+5) - \sum_{p-1}^{g} t_p(t_p - 1)(2t_p + 5) \right]$$

Where: $g = number\ of\ measurement\ values\ observed\ more\ than\ once, or\ 'tiedgroups'$

$t_p = the\ number\ of\ observations\ in\ p^{th}\ group$

Once computed, the test statistic, Z_{mk}, is compared to the critical value, Z1-α, of the standard normal distribution. The critical value for a two-sided test with a Type I error rate of α=0.05 is +/- 1.964.

Mann Kendall Power and Sample Size Estimates

Statistical power is defined as the probability of correctly accepting the alternative hypothesis for a given test. As a general rule, power can be increased by increasing the sample size or decreasing the variability of the data. Conventionally, 80% is considered an "acceptable" power.

A Monte-Carlo simulation was implemented in Visual Sample Plan to estimate the number of samples required to detect a trend using the MK test (Pulsipher 2005). One thousand sets of *n* random measurements were generated based on each station's variability, and power was defined as the number of trend detections that was achieved in the set. The sample size *n* was increased until the desired power of 80% was achieved.

Sen's Nonparametric Estimate of Slope

Sen's estimate of nonparametric slope is the median of all individual slope estimates, where individual estimates are made between a measurement at each time point and all measurements at subsequent time points. The slope between two individual points is defined as:

$$Q = \frac{y_j - y_k}{t_j - t_k}$$

Where: $Q = Slope$

$y_{j,k} = measurements\ at\ times\ t_j, t_k$

$t_j, t_k = times\ at\ which\ y_j, y_k were\ measured$

For a sample set of n, there are N = n(n-1)/2 individual slope estimates, and Sen's nonparametric estimate of slope is the median of all N calculations.

Analysis and Discussion

The analysis found that a ten percent change from the original mean could be identified in 23 of the 30 monitoring stations within two permit cycles (10 years) (Table A4-2). Significant trends could theoretically be monitored within another seven years at the remaining stations with the same sampling frequency. The reason this trend would go undetected at seven stations is the relatively high variability in each station's data compared to its mean (Table A4-1).

The Mann-Kendall Test considers both upward and downward trends, but it should be noted that downward trends of 10% of the original mean/year would result in concentrations of 0 by year ten. While this does not violate any statistical assumptions, this means that if a significant downward trend of 10% of the original mean/year cannot be detected in 10 years, the trend will go undetected by statistical means by the time there is no pollutant left in the waterbody to detect. The only way to statistically identify such a trend would be to increase sampling frequency.

Table A4-2. Number of Samples Required to Detect an Upward or Downward Trend of 10% of the Pre-implementation Mean per Year				
Watershed	**Station**	**Existing Sample Size (n)**	**Does significant trend currently exist? (alpha = 0.05)***	**Number of monthly samples required to detect 10% change of original mean/year****
Anacostia	ANA01	141	Yes	82
Anacostia	ANA05	81	Yes	68
Anacostia	ANA08	96	No	72
Anacostia	ANA11	80	Yes	67
Anacostia	ANA14	170	Yes	101
Anacostia	ANA19	88	No	89
Anacostia	ANA21	171	No	94
Anacostia	ANA24	86	No	106
Anacostia	ANA28	102	No	82
Anacostia	ANA29	102	No	139
Anacostia	ANA30	92	No	90
Anacostia	PCW04	100	No	97
NW Trib	PTB01	69	No	81
NW Trib	RCR01	66	No	199
NW Trib	RCR09	66	No	182
NW Trib	RCR12	69	No	95
NW Trib	TCO01	53	No	98
NW Trib	TCO06	55	No	104
NW Trib	TMI01	32	No	162
Potomac	DC-C1	28	No	186
Potomac	DC-C2	28	No	186
Potomac	DC-C3	27	No	198
Potomac	PMS01	48	No	98
Potomac	PMS10	87	No	84
Potomac	PMS21	86	No	95
Potomac	PMS29	82	No	76
Potomac	PMS37	49	No	70
Potomac	PMS44	40	No	70

Table A4-2. Number of Samples Required to Detect an Upward or Downward Trend of 10% of the Pre-implementation Mean per Year				
Watershed	**Station**	**Existing Sample Size (n)**	**Does significant trend currently exist? (alpha = 0.05)***	**Number of monthly samples required to detect 10% change of original mean/year****
Potomac	PMS51	36	Yes	77
Potomac	PMS52	51	No	74

***Mann Kendall non-parametric test with alpha=0.05**

****10% of pre-implantation mean at each station**

It is important to consider whether this magnitude of concentration change is likely to occur. As evident in the results, it takes a large of amount of data to significantly identify a trend of 10% change per/year. This is a very fine level of statistical detection, but it is, perhaps, unrealistic to expect this magnitude of annual reduction or increase in TSS concentration.

The ability to identify trends over time also depends on the sampling frequency. More frequent sampling will allow trends to be revealed more quickly or with more certainty. The effect of variable sampling frequencies and detection levels were explored at station TCO01. Table A4-3 shows that these two parameters can have a large effect on the ability to discern trends. As expected, more frequent sampling reduces the overall time to identify trends and fewer samples are required to detect larger magnitudes of change. Given the enormous efforts required to identify change, the sampling frequencies in this analysis were chosen to accommodate realistic field efforts rather than unrealistic statistical requirements.

Table A4-3. Relationship between Sampling Frequency and Ability to Detect Trends of Various Magnitudes at Station TC001				
Sampling Frequency	**Number of samples needed to detect an annual change of:**			
	5% of original mean	**10% of original mean**	**25% of original mean**	**50% of original mean**
Weekly	411	259	142	89
Two per month	258	163	88	56
Monthly	152	96	54	35
Three per year	61	40	22	15
Annually	31	20	12	9
Sampling Frequency	**Time (in years) needed to detect an annual change of:**			
	5% of original mean	**10% of original mean**	**25% of original mean**	**50% of original mean**
Weekly	7.9	5.0	2.7	1.7
Two per month	9.9	6.3	3.4	2.2
Monthly	12.7	8.0	4.5	2.9
Three per year	15.3	10.0	5.5	3.8
Annually	31.0	20.0	12.0	9.0

Practicality and Limitations

Under the current receiving water monitoring program implemented by DDOE's WQD, samples have been collected semi-monthly for approximately 13 years at the Anacostia stations and approximately eight years at the Northwest Tributary and Potomac stations. A separate Mann-Kendall test was performed on the existing data showed that significant trends only current exist at five of the 30 stations. The inability to detect many existing trends in the receiving water data was due to the large variability of the data and the relatively small sample size for each station (Table A3-1). These results illustrate the extreme difficulty in achieving significant results for trend detection of environmental data, and suggest that future trends may be equally difficult to discern.

While a great effort would be required to detect trends with 'statistical significance', the existing data do provide practical significance. One major practical use of the historical data is the potential to compare this data with future datasets. Such statistical tests such as the t-test or Wilcox rank test may be used to compare the effect of watershed protection efforts by comparing pre- and post-implementation concentrations. Other uses of these data include the ability to inform future sampling plans, provide insight into water quality and health, and allow visual inspection of patterns that may not be measurable with statistics.

References

Matzke, B. D., J. E. Wilson, L. L. Newburn, S. T. Dowson, J. E. Hathaway, L. H. Sego, L. M. Bramer, and B. A. Pulsipher. 2014. PNNL-23211, Pacific Northwest National Laboratory, Richland, Washington.

EPA (2011). Authorization to Discharge under the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit. NPDES Permit No. DC0000221.

APPENDIX 5:

Field Data Form

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF THE ENVIRONMENT

Natural Resources Administration
Water Quality Division, Planning and Enforcement Branch
Washington, D.C. 20002
Phone: (202) 535-2600; Fax (202) 535-1363

Dry Weather Outfall Inspection Form

Location Information:

Date:		**Time:**		**Outfall ID:**		**Inspectors:**					
Weather and Temperature:											
Outfall Location:											
Proximity to Road:		**Reference Point:**									
Receiving Water Body:		**Material:**		**Shape:**							
Size:		**Structural Condition:**									
Flow:	☐ **No flow**	☐ **Trickle**	☐ **Steady**	☐ **Intermittent**							
If Intermittent, describe:	**Flow rate:**										

Physical Characteristics:

Turbidity:	☐ Clear	☐ Cloudy	☐ Opaque		**Other**				
Odor:	☐ None/Natural	☐ Sewage/Septic		**Other**					
Floatables:	☐ None	☐ Present							
Oil Sheen:	☐ None	☐ Present							
Vegetation:	☐ None	☐ Present, if yes describe:							
Sediment:	☐ None	☐ Present, if yes describe:							

General Observations:

Any Tests Conducted?	☐ Yes	☐ No							
Temp	°C	pH		D.O	mg/L	Conductivity	mS/cm		
Follow-Up required	☐ Yes	☐ No							
Photo Taken	☐		☐		Photo no.				

Results:

Comments:

Actions Taken:

ATTACHMENT 4

MS4 Permit Improvement Guide

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF WATER

OFFICE OF WASTEWATER MANAGEMENT

WATER PERMITS DIVISION

APRIL 2010

EPA 833-R-10-001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 14 2010

OFFICE OF WATER

Dear NPDES Stormwater Managers,

I am pleased to announce that the Environmental Protection Agency (EPA) has completed the "Municipal Separate Storm Sewer System Permit Improvement Guide." The primary purpose of this guidance document is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) permits.

This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. The Guide also includes recommendations for permit writers on how to tailor the language depending on the type of permit. For example, permits covering traditional municipalities may contain different permit provisions than those covering non-traditional entities like departments of transportation, universities, and prisons.

I ask that permit writers review the permit language and corresponding discussion presented in this Guide and consider how to incorporate this, or similar, language into their MS4 permits. Some modification of the language may be necessary to make it suitable for use with specific MS4 permits, and to better tailor it to meet the needs and goals of the various permitting authorities.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as protective in meeting the applicable regulations. EPA expects the permitting authority to continue to make significant progress and ensure that the intent of the regulations or more stringent requirements is captured in the permit.

In addition, EPA would like to particularly stress the following key principles:

- Permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation.
- Permits should contain a performance standard for post-construction that is based on the objective of maintaining or restoring stable hydrology to protect water quality of receiving waters or another mechanism as effective.

EPA has begun a rulemaking to strengthen the stormwater program. Using this Guide to improve permits represents the direction that EPA is taking to strengthen the program. This Guide is a living document that will be updated as new information for improving the stormwater program is obtained.

I appreciate your continued efforts in strengthening the NPDES municipal stormwater program. If you have any questions about this Guide or suggestions for further improvements, please contact Rachel Herbert of my staff at herbert.rachel@epa.gov or call her at 202-564-2649.

Sincerely,

Linda Y. Boornazian

Linda Y. Boornazian, Director
Water Permits Division

CC: State Stormwater Coordinators
Association of State and Interstate Water Pollution Control Administrators

Contents

INTRODUCTION & GETTING STARTED

Purpose

The primary purpose of the MS4 Permit Improvement Guide (Guide) is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) stormwater permits. The objective of the Guide is to facilitate the creation of MS4 permits which are clear, consistent with applicable regulations, and enforceable. This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. Permit language should include controls that identify specific actions permittees must perform to comply with the Permit Requirements.

This Guide focuses in large part on permits for small (Phase II) MS4s. However, while the contents of the Guide are generally organized consistent with the six minimum control measures (40 CFR 123.34(b)) applicable to Phase II MS4 permits, however, permit writers may find this Guide useful for Phase I MS4 permits. In addition, the Guide specifically addresses Phase I MS4 Permit Requirements with regard to the industrial program elements set forth in the Phase I regulations at 40 CFR 122.26(d)(2)(ii) and (iv)(C). These are addressed in Chapter 7. The Guide may also be useful for "non-traditional" MS4 permittees, such as departments of transportation (DOTs), universities and prisons.

EPA has developed a Stormwater Phase II Final Rule Fact Sheet Series (www.epa.gov/npdes/stormwater/swfinal) to assist permitting authorities and permittees in understanding the Phase II regulations. Further, EPA has developed the National Menu of Stormwater Best Management Practices (www.epa.gov/npdes/stormwater/menuofbmps) which provides descriptive information in fact sheets about various best management practices associated with the Phase II six minimum control measures.

The Guide was created by reviewing numerous MS4 permits and fact sheets from around the country. Some of the example permit and fact sheet language presented in this Guide has been adapted from these permits; in those instances where existing language that meets the purpose of this document was not available, EPA has crafted new language.

Contents of this Guide

This document is divided into parts, as noted above, based largely on the six minimum control measures required in the Phase II stormwater regulations (see 40 CFR 122.34(b)). Chapters 1 -6 address development and implementation of a stormwater management program (SWMP) and the six minimum control measures that must be included in the SWMP. Chapter 7 addresses industrial facilities programs relevant for Phase I MS4 permits. Chapter 8, Overall Evaluation and Adaptive Management, discusses reporting, evaluation, and tracking requirements. This Guide does not focus on the water quality provisions of the Clean Water Act, which may require more stringent requirements than those programmatic elements specified here.

Each chapter opens with an introduction providing a brief overview of relevant regulatory requirements pertaining to the subject of the chapter. Each chapter is then divided into sections in which the following topics are addressed:

- *Example Permit Provision* – This section includes example MS4 permit language. The language has been formatted and numbered in such a way that each section corresponds directly to a permit structured in accordance with the chapter sequence of this Guide. EPA developed these examples by first surveying existing EPA and State MS4 permit language and drawing upon agency experience in implementing permits. EPA has identified the source of the language (in footnotes) if adapted from specific permits.
- *Example Permit Requirement Rationale for the Fact Sheet* – This section describes the rationale for the example permit provision. This language can assist the permit writer in developing the fact sheet, which accompanies all NPDES permits; however, it is up to the permit writer to ensure that a complete and customized version of the fact sheet accompanies the permit. Example Permit Requirement Rationale for the Fact Sheet sections often describe "requirements" or steps that "must" be taken. To the extent this language is used in these sections, it is intended to describe requirements included in the example permit provisions. It does not mean that all permits "must" include the specific "requirement" described.
- *Recommendations for the Permit Writer* (included where appropriate) – This section discusses issues the permit writer should consider in determining how to use the example permit provisions.

How to Use this Guide

This guidance includes "example" MS4 permit language for specific program elements, but is not intended to be definitive or comprehensive for all MS4 Permit Requirements.[1] EPA recommends that permit writers review the example permit language presented in this guide and consider how to incorporate this, or similar, language into MS4 permits as appropriate. Each state may have different NPDES requirements along with varied experience overseeing MS4 programs, and MS4 permittees vary widely in storm water management experience and sophistication, size, topography, precipitation patterns, land use, receiving water conditions and other factors. In most instances, EPA anticipates that permit writers will modify the language to make it suitable for specific MS4 permits, and to tailor example provisions to meet the various needs and goals that apply.

When possible, this Guide has tried to provide examples that can be used for both Phase I and Phase II permits. However, in some instances EPA has provided suggestions for how the language can be tailored to better fit within the context of a Phase I or Phase II permit. In addition, EPA acknowledges that some language presented in this Guide may be more suitable for an individual permit rather than a general permit. While EPA has presented a discussion for ways the language could be altered to fit these scenarios in Recommendations for the Permit Writer sections, it is up to the permit writer to determine the best use of the material for the permit being crafted.

[1] For example, the guide does not explicitly address provisions for compliance with CWA section 402(p)(3)(B)(ii), water quality standards, applicable wasteload allocations in TMDLs or such other conditions as the permitting authority deems necessary. For information on integrating TMDLs into stormwater permits see USEPA's DRAFT TMDLs to Stormwater Handbook (www.epa.gov/owow/tmdl/stormwater)

The example permit language in this Guide has been written as if the permit is a reissued permit and not an initial permit, since most MS4 permittees have been subject to NPDES permits for at least one permit term. Requirements to develop the initial SWMP are not included in this Guide since they would have been included in the first permit term. It is important that permit writers consider the different stages in the development and implementation of SWMPs when establishing permit conditions as well as the experience learned from other more advance programs. So, for example, this Guide includes brackets to indicate the place for an appropriate schedule or deadline rather than indicating specific timeframes in all instances. These examples are available to the permit writer, along with other resources such as the permittee's draft or existing SMWP document, annual reports, prior permit experience, receiving water quality information and the permit writer's best professional judgment, to issue permits suitable for their specific MS4s.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as compliant in meeting the applicable regulations and protective of water quality standards. EPA expects the permitting authority to ensure that the intent of all applicable regulations is captured in the permit. States with more stringent permit provisions should continue to strengthen these provisions as the permits are reissued. This Guide includes suggestions on how to develop permit language for MS4 permittees. This Guide does not impose any new legally binding requirements on EPA, States, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this Guide and any statute, regulation, or permit the statute, regulation or permit controls.

Terminology: SWMP and SWMP Document
This guide uses the term SWMP to refer to the stormwater management program that is required by the Phase I and Phase II regulations to be developed by MS4 permittees. The SWMP document is the written plan that is used to describe the various control measures and activities the permittee will undertake to implement the stormwater management program.

Preparing to Write an MS4 Permit

Most Phase II MS4 permittees are regulated under a general permit (with some exceptions where individual permits have been used for Phase II and non-traditional MS4 permittees). Phase I MS4 permittees are regulated under individual permits, and can include multiple co-permittees. EPA regulations require that initial MS4 permits (i.e. first permit term) set the foundation of the permittee's SWMP. For Phase II MS4 the focus is on the six minimum control measures in 40 C.F.R. 122.34(b), while the Phase I MS4 permittees are informed by the regulations at 40 C.F.R. 122.26(d). See Chapter 1 of this Guide.

As the permit writer prepares to reissue an MS4 permit, regardless of whether the permit is an individual or general permit, EPA recommends that the permit writer review, at a minimum, the following sources of information:

Past annual reports
For currently regulated MS4s, annual reports submitted by the permittee can include information that will help permit writers develop more specific and measurable Permit Requirements. The most recent annual report is usually the most helpful to review, but additional annual reports can be reviewed if time allows. If the permit writer is developing a general permit, a broad selection of

annual reports from various permittees should be reviewed. In particular, EPA recommends that the permit writer review, at a minimum, the following specific information:

Areas of obvious strengths or weaknesses in the SWMP

- For example, is the permittee vague about specific activities (often an indicator of a weak program area), or is the permittee clearly meeting the requirements of the permit and/or going above and beyond the minimum requirements?

Trends or common compliance problems

- For example, does the permittee analyze the data to assess the most common compliance problems, and then modify their controls/programs to address these problems? For example, do they use the common compliance issues identified to target their training and outreach/education efforts for construction operators?

Level of implementation of SWMP activities (e.g., frequency and numbers of inspections, frequency of catch basin cleaning, street sweeping)

- Does the permittee report the total universe when reporting the quantity of an activity achieved? For example, if the MS4 is required to conduct industrial inspections, does it report it did 100 inspections (which may be good or bad, depending on how many it was required to inspect), or that it did 100 out of 5,000 (only 2% of the total)?

Water quality priorities for the permittee (e.g. impaired waters, TMDLs, high quality waters)

- Does the permittee's annual report describe priority pollutants for impaired waters and other water quality programs and what was done to reduce and/or eliminate their contact with stormwater? Does the SWMP target both impaired and high quality waters?

Specific sources or pollutants of concern permittee is currently focusing on

- Does the SWMP target pollutants of concern in its activities?

Level and type of enforcement currently being used by permittee

- Does the annual report provide data and summary information on the different types of enforcement actions taken (how many verbal warnings, written notes, fines, etc)?

Any trends (i.e. water quality, compliance, control measure implementation levels) being reported by Permittees which indicate success or failure of particular SWMP components

- Does the permittee analyze the data, or just report the data in the MS4 annual report?

Types of measurable goals being applied and achieved by permittees

- Has the permittee met the measurable goals stated in the permit and SWMP?

Stormwater management program (SWMP)
Review the most current SWMP documents for potential gaps that may need to be specifically addressed in the reissued MS4 permit. EPA's *MS4 Program Evaluation Guidance* (available at www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf) can be used to assess the key elements in a SWMP.

NPDES MS4 audit reports, construction/industrial/commercial site inspection reports
Review the findings from any MS4 audits conducted during the past permit term to help identify key issues that should be addressed in the next permit. For example, if the audits identified weak or missing program elements and other controls, these should be addressed in the reissuance of the permit. Construction, industrial, and/or commercial site inspection reports for facilities within the MS4's boundary should be reviewed to determine if there are common compliance issues that should be addressed in the MS4 permit (for example, more training, more frequent inspections, more complete inventory or prioritization, etc.).

Monitoring/Information on Quality of Receiving Waters
Review any monitoring data collected by the permittee or any other entity that has collected useful monitoring data to identify potential pollutants of concern. In addition, the most recent information on impaired waters and total maximum daily loads (TMDLs) for the permit area should be reviewed. If there are waste load allocations (WLAs) applicable to the permittee, these should be addressed in the permit. If no WLA has been assigned to the MS4, the permit writer should still consider pollutants of concern identified in 303(d) lists and TMDLs when developing Permit Requirements. Such information will help identify whether more targeted permit conditions are needed to reduce the discharge of these pollutants. This Guide does not specifically address the inclusion of TMDL requirements in MS4 permits.

Permit renewal application data or past notice of intent (NOI) information
Review any permit renewal applications or NOIs submitted to establish coverage for the previous permit term. Permit writers should consider the recommendations made in the EPA "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" (www.epa.gov/npdes/pubs/owm0125.pdf) published in 1996 (40 CFR Part 122; Federal Register, Volume 61, Number 155). This document provides information which clarifies the MS4 reapplication requirements and explains that MS4 permit applicants and NPDES permit writers have discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis.

Previous MS4 permit
Finally, review any past MS4 permits to identify where permit language should be revised or completely rewritten, for example, because language was vague. This MS4 permit improvement Guide should be used help strengthen key areas in the permit.

Note that if the MS4 permit is being issued for the first time, some of the above information will not exist yet, such as past annual reports or old SWMP documents.

MS4 Permit Writing Tips

There are a few general tips to keep in mind when writing MS4 permits. First, and most importantly, permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific

deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation. Doing so will allow permitting authorities to more easily assess compliance, and take enforcement actions as necessary.

For example, the following permit provision could be strengthened: "The permittee shall demonstrate compliance with this Permit through the timely implementation of control measures and other actions to reduce pollutants in discharges to the maximum extent practicable in accordance with their SWMP…" This permit provision does not define what "timely implementation" is, allowing the permittee to determine what is timely. Timely implementation could be, although it probably was not intended to be, interpreted as meaning up to five years, or it could mean that implementation must occur within six months. In addition, "other actions" are mentioned in this provision, but they are never described. If a permit requires "other actions," these actions should be specifically described in the permit. Finally, it is important to strike a balance of providing specific Permit Requirements while still allowing the permittee come up with innovative controls.

In addition, vague phrases such as "as feasible" and "as possible" should be avoided because they result in inconsistent implementation by permittees and difficulties in permit authority oversight and enforcement. The permit writer's role is to determine what is necessary to achieve in a permit term, and to develop clear, enforceable language that conforms to these determinations. Accordingly, the permit should set forth objective standards, criteria or processes, which will aid the permittee in complying with the permit, as well as the permitting authority in determining compliance in the MS4 permit.

In order for permit language to be clear, specific, measurable and enforceable, each Permit Requirement will ideally specify:

- *What* needs to happen
- *Who* needs to do it
- *How much* they need to do
- *When* they need to get it done
- *Where* it is to be done

For each Permit Requirement: "What" is usually the stormwater control measure or activity required. "Who" in most cases is implied as the permittee (although in some cases the permitting authority may need to specify who exactly will carry out the requirement if there are co-permittees). "How much" is the performance standard the permittee must meet (e.g., how many inspections). "When" is a specific time (or a set frequency) when the stormwater control measure or activity must be completed. "Where" indicates the specific location or area (if necessary). These questions will help determine compliance with the permit requirement.

The Use of Partnerships in MS4 Permits

Since the Phase II Rule applies to all small MS4s within an urbanized area regardless of political boundaries it is very likely that multiple governments and agencies within a single geographic area are subject to MS4 permitting requirements. For example, a city government that operates a small MS4 within an urbanized area may obtain permit coverage under a general Phase II permit while other MS4s in the same vicinity (such as a county, other cities, or a state DOT) may have individual Phase I MS4 permits. All permittees are responsible for permit compliance in their permitted area. Given the

potential for overlapping activities in close proximity, EPA encourages permittees in a geographic area to establish cooperative agreements in implementing their stormwater programs. Partnerships and agreements between permittees and/or other agencies can minimize unnecessarily repeating activities and result in using available resources as efficiently as possible. Using existing tools and programs instead of creating new ones can allow permittees to focus resources on high priority program components instead. In addition by forming partnerships, water quality can be examined and improved on a larger, consolidated scale rather than on a piece-meal, site-by-site basis.

In addition to requiring MS4 permittees to maintain records of program implementation such as inspection forms, monitoring data, dry weather screening reports, and notices of violation, EPA recommends that MS4 permits include requirements for permittees to summarize and analyze data and submit the analysis to the permitting authority. For example, as permittees are required to evaluate program compliance and appropriateness of best management practices, the permit could require permittees to address in annual reports questions such as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the permittee need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations) How has the permittee responded to these trends? Over the last year, how many construction site SWPPP reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

Also, although the stormwater Phase II rule requires reports, after the first permit term, reports are required to be submitted only in years two and four of the permit term. EPA strongly encourages annual reports for all permittees. (See 40 CFR 122.34(g)(3))

CHAPTER 1: ESTABLISHMENT OF THE STORMWATER MANAGEMENT PROGRAM

Introduction

Included Concepts

- Requirement to develop a stormwater management program
- Necessary legal authority
- Enforcement Measures and Tracking
- Adequate resources

An over-arching legal authority framework must be established in order for the SWMP to be effective. Ensuring that the permittee has established the legal authority to meet the requirements of the permit, created a well described enforcement response plan (ERP), and allocated adequate resources will set a necessary foundation for the SWMP.

Legal Authority

Permittees must have the authority to carry out all aspects of their stormwater management programs, including requiring the control of pollutants flowing into the MS4 system, having access to inspect sources of pollutant discharges, and being able to compel compliance and issue citations in the event of violations. Legal authority is especially critical for construction site runoff control, post-construction/permanent runoff control, industrial and commercial inspections, and illicit discharge detection and elimination programs. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B))

A permittee seeking permit coverage under individual permits is required to describe the legal authority it has to implement and enforce the SWMP. EPA recommends that general permits also require regulated MS4s to describe their applicable legal authority in their Notices of Intent (NOIs) (40 CFR 122.26(d)(2)(i), 122.33(b)). This legal authority is typically established through the adoption of one or more ordinances, or by modifying existing ordinances to provide the necessary authority. In some cases, a permittee might already have codified water quality provisions to address previous MS4 Permit Requirements; in this case, the permittee should be required to review existing codes and ordinances and prepare a statement detailing any necessary changes required to address the new MS4 permit requirements. Some permittees, such as, DOTs, universities, and prisons, may not have the authority to create and enforce ordinances. For these entities other mechanisms and authorities that they do possess should be utilized (e.g. DOT right-of-way permits).

Enforcement Measures and Tracking

Permittees are required by the Phase I and Phase II regulations to include in their ordinance, or other regulatory mechanism, penalty provisions to ensure compliance with construction and industrial requirements, to require the removal of illicit discharges, and to address noncompliance with post-construction requirements. In complying with these requirements, EPA recommends the use of enforcement responses that vary with the type of permit violation, and escalate if violations are repeated or not corrected. EPA recommends that the permittee be required to develop and implement an enforcement response plan (ERP), which clearly describes the action to be taken for common violations associated with the construction program, industrial and commercial program, or other SWMP programs. A well-written ERP provides guidance to inspectors on the different enforcement

responses available, actions to address general permit non-filers, when and how to refer violators to the State, and how to track enforcement actions.

Adequate Resources

Each permittee will fund its SWMP differently; therefore, in order to assess whether adequate resources have been allocated to carry out the requirements of the MS4 permit, the permitting authorities should require their permittees to submit an accounting of stormwater-related budgets, costs, and staffing resources updated annually. The fiscal analysis should document and explain changes to budgets from year to year and describe how each type of funding can and cannot be used for stormwater program activities. (See 40 CFR 122.26(d)(2)(vi)).

1.1 Requirement to Develop a Stormwater Management Program

Example Permit Provision

1.1.1 Requirement to Develop Program – The permittee must revise and update its written stormwater management program (SWMP) document and submit the SWMP to the [*insert name of Permitting Authority*] for review by [*insert deadline, e.g., within one year of permit issuance*]. The permittee must continue to implement the current SWMP until the revised SWMP is submitted. The SWMP does not contain effluent limitations; the limitations are contained in Parts [*insert relevant part of the permit*] of the permit.

1.1.2 Contents of the SWMP document – At a minimum, the permittee must include the following information in its SWMP document:

a. Ordinances, or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit (see Part 1.1);

b. Statement by the permittee's legal counsel certifying to adequacy of legal authority (see Part 1.2);

c. Written procedures describing how the permittee will implement provisions described in Parts 2-8.

1.1.3 Modifications to the SWMP document – The [*insert applicable name of permitting authority*]may notify the permittee of the need to modify the SWMP document to be consistent with the permit, in which case the permittee will have [*insert deadline, e.g. 90 days*] to finalize such changes to the program. The permittee is required to keep the SWMP document up to date during the term of the permit. Where the permittee determines that modifications are needed to address any procedural, protocol, or programmatic change, such changes must be made as soon as practicable, but not later than [*insert deadline, e.g. 90 days*].

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to develop a SWMP document that describes how the permittee will meet the control requirements in the permit. (See 40 CFR 122.26(d)(2)(iv), 122.34(a)). The SWMP document is a consolidation of all of the permittee's relevant ordinances or other regulatory requirements, the description of all programs and procedures (including standard forms to be used for reports and inspections) that will be implemented and enforced to comply with this permit and to document the selection, design, and installation of all stormwater control measures. The permittee is required to submit its SWMP document to the permitting authority. If modifications to the SWMP are necessary then the permitting authority will notify the permittee.

Recommendation for the Permit Writer

The permit writer should include in this section the relevant parts of the permit that require specific descriptions or justifications to be included in the SWMP document. Also, permit writers may need to include an additional requirement regarding the submittal of the SWMP document since some information contained in the SWMP document is required to be submitted prior to the permittee obtaining permit coverage. In addition, permit writers should refer to the memo entitled *Interim Guidance on Implementation of NPDES Regulations for Storm Water Phase II for Small Municipal Separate Storm Sewer Systems in Response to Recent Ninth Circuit Decision in Environmental Defense Center, et al. v. EPA, No. 00-70014 & consolidated cases (9th Cir.)* for additional guidance on the implementation of regulations for Phase II MS4s (www.epa.gov/npdes/pubs/interim_guidelines_memo_final.pdf).

1.2 Requirement to Develop Adequate Legal Authority to Implement and Enforce Stormwater Management Program

Example Permit Provision

1.2.1 Within [*insert deadline, e.g., one year from permit issuance*] the permittee must review and revise its relevant ordinances or other regulatory mechanisms, or adopt any new ordinances or other regulatory mechanisms that provide it with adequate legal authority to control pollutant discharges into and from its MS4, and to meet the requirements of this permit.

1.2.2 To be considered adequate, this legal authority must, at a minimum, address the following:

a. Authority to Prohibit Illicit Discharges – Prohibit and eliminate illicit connections and discharges to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-stormwater discharges except fire fighting discharges, discharges from NPDES permitted industrial sources and discharges not otherwise authorized under Part 1.2.2.b. of this permit.

b. Allowable Non-Stormwater Discharges –Exceptions to the prohibition in Part 1.2.2.a. may include the following, only if they are considered non-significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

c. Authority to Prohibit Spills or Other Releases – Control the discharge of spills, and prohibit dumping or disposal of materials other than stormwater into the MS4.

d. Authority to Require Compliance – Require compliance with conditions in the permittee's ordinances, permits, contracts, or orders (i.e., hold dischargers accountable for their contributions of pollutants and flows).

e. Authority to Require Installation, Implementation, and Maintenance of Control Measures – Require owners/operators of construction sites, new or redeveloped land, and industrial and commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of stormwater control measures consistent with [*insert references to applicable stormwater control measure manuals, guidance documents, etc.*].

f. Authority to Receive and Collect Information – The permittee must have the authority to request from operators of construction sites, new or redeveloped land, and industrial and commercial facilities information such as stormwater plans, inspection reports, and monitoring results, and other information deemed necessary to assess compliance with this permit. The permittee must also have the authority to review designs and proposals for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained.

g. Authority to Inspect – The permittee must have the authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with local stormwater control ordinances/standards or requirements in this Permit.

h. Response to Violations – The permittee must have the ability to promptly require that violators cease and desist illicit discharges or discharges of stormwater in violation of any ordinance or standard and/or cleanup and abate such discharges, including the ability to:

    1. Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within [*insert deadline, e.g. 48 hours*] of notification; or

    2. For uncontrolled sources of pollutants that could pose an environmental threat, require abatement within [*insert timeframe, e.g. 30 days of notification*]; or,

3. Perform the clean up and abatement work and bill the responsible party, if necessary.
4. If a situation persists where pollutant-causing sources or activities are not abated, provide the option to order the cessation of activities until such problems are adequately addressed.
5. When all parties agree that clean-up activities cannot be completed within the timeframe provided, determine a new timeframe and notify the [*insert name of permitting authority*].

i. Monetary Penalties – The permittee must have the ability to:

1. Levy citations or administrative fines against responsible parties either immediately at the site, or within a few days.
2. Require recovery and remediation costs from responsible parties.

j. Civil/Criminal Penalties – The permittee must have the ability to impose more substantial civil or criminal sanctions (including referral to a city or district attorney) and escalate corrective response, consistent with its enforcement response plan developed pursuant to Part 1.3, for persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm.

k. Interagency Agreements – Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements or other similar agreements with other owners of the MS4, such as [*insert other applicable permittees*].

1.2.3 The permittee must include as part of its written SWMP document a statement certified by its chief legal counsel that the permittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in this permit. This statement must include:

a. Identification of all departments within the permittee's jurisdiction that conduct stormwater-related activities and their roles and responsibilities under this permit. Include an up-to-date organizational chart specifying these departments, key personnel, and contact information.

b. Identification of the local administrative and legal procedures and ordinances available to mandate compliance with stormwater-related ordinances and therefore with the conditions of this permit.

c. A description of how stormwater related-ordinances are implemented and appealed.

d. A description of whether the municipality can issue administrative orders and injunctions, or whether it must go through the court system for enforcement actions.

Example Permit Requirement Rationale for the Fact Sheet

Adequate legal authority is required to implement and enforce most parts of the SWMP. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B)). Without

adequate legal authority the MS4 would be unable to perform many vital SWMP functions such as performing inspections and requiring installation of control measures. In addition, the permittee would not be able to penalize and/or attain remediation costs from violators.

Recommendations for the Permit Writer

A major difference between a traditional MS4 and a non-traditional MS4 (such as a DOT, military base, or university) is often the scope of legal authority available to the MS4. Non-traditional MS4 permittees often cannot pass "ordinances" nor do they have enforcement authority like a typical municipality, so legal authority may consist of policies, standards, or specific contract language. Non-traditional MS4 permittees also do not generally have the authority to impose a monetary penalty. Although these differences exist, just like traditional MS4s, non-traditional MS4s must have the legal authority to develop, implement, and enforce the program. Moreover, the scope of legal authority that may be exercised by MS4 operators that are municipalities may vary from state to state. Therefore, permit writers should tailor the legal authority section depending on the types of permittees covered and the scope of authority that may be exercised by the permittee. For example, non-traditional MS4 permittees often have authority over what their contracts require. Therefore, the permit could require that contracts for construction and maintenance activities include specific stormwater requirements that ensure the permittee's requirements are met. In addition, cooperative agreements could be maintained with those permittees that do possess the legal authorities to enforce stormwater measures within the permittee's MS4 boundary.

The discharge prohibitions listed in Part 1.2.2 are taken from the Phase II regulations and are the minimum requirements. Note that, unlike Phase II MS4s, Phase I MS4 permittees are required to address the sources of non-stormwater discharges in Part 1.2.2.b. when they are identified as sources of pollutants in stormwater discharges. (See 40 CFR 122.26(d)(2)(iv)(B)). The permit writer may choose to apply additional or more stringent prohibitions. For example, some states have chosen to prohibit discharges from street washing activities as they can be significant sources of pollutants such as oil and grease and heavy metals.

1.3 Enforcement Measures and Tracking

Example Permit Provision

1.3.1 The permittee must continue to implement, and revise within [*specify deadline for completion, e.g. 12 months of permit issuance*] if necessary, an enforcement response plan (ERP), which sets out the permittee's potential responses to violations and addresses repeat and continuing violations through progressively stricter responses as needed to achieve compliance. The ERP must describe how the permittee will use each of the following types of enforcement responses based on the type of violation:

a. Verbal Warnings – Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of the violation and required corrective action.

b. Written Notices – Written notices of violation (NOVs) must stipulate the nature of the violation and the required corrective action, with deadlines for taking such action.

c. Escalated Enforcement Measures – The Permittee must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent), and to escalate enforcement responses where necessary to address persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm:

   1. Citations (with Fines) – The ERP must indicate when the permittee will assess monetary fines, which may include civil and administrative penalties.
   2. Stop Work Orders – The permittee must have the authority to issue stop work orders that require construction activities to be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
   3. Withholding of Plan Approvals or Other Authorizations – Where a facility is in non-compliance, the ERP must address how the permittee's own approval process affecting the facility's ability to discharge to the MS4 can be used to abate the violation.
   4. Additional Measures – The permittee may also use other escalated measures provided under local legal authorities. The permittee may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project's bond or directly billing the responsible party to pay for work and materials.

1.3.2 Enforcement Tracking – The Permittee must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:

a. Name of owner/operator of facility or site of violation
b. Location of stormwater source (i.e., construction project, industrial facility)
c. Description of violation
d. Required schedule for returning to compliance
e. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved in a timely manner
f. Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations)
g. Any referrals to different departments or agencies
h. Date violation was resolved.

1.3.3 Recidivism Reduction – The permittee is required to identify chronic violators of any SWMP component and reduce the rate of noncompliance recidivism. The permittee

must summarize inspection results by these chronic violators and include incentives, disincentives, or an increased inspection frequency at the operator's sites. [2]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires permittees to have an established, escalating enforcement policy that clearly describes the action to be taken for common violations. The policy must describe the procedures to ensure compliance with local ordinances and standards, including the sanctions and enforcement mechanisms that will be used to ensure compliance. (See 40 CFR 122.26(d)(2)(i)). It is critical that the MS4 have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance. Enforcement responses to individual violations must consider criteria such as magnitude and duration of the violation, effect of the violation on the receiving water, compliance history of the operator, and good faith of the operator in compliance efforts. Particularly for construction sites, enforcement actions must be timely in order to be effective.

Recommendations for the Permit Writer

Typical enforcement mechanisms include verbal warnings, written NOVs, administrative fines and orders, stop work orders, and civil or criminal penalties. Some non-traditional MS4 permittees, such as DOTs and universities, may not have the authority to use the mechanisms described above. Therefore the enforcement requirements in the permit should take the permittee's enforcement limitations and abilities into consideration, allow for alternative mechanisms such as related contract obligations or right-of-way permits, and/or require entities that cannot enforce to coordinate with those entities that can. For example, if a DOT discovers an illicit discharge to the right-of-way, a mechanism should be in place for the DOT to communicate with the adjacent municipality to eliminate the discharge in a timely manner.

Some permit writers include specific language as to when permittees can refer violations of NPDES permits to the permitting authority. Because of the often similar control measures required in MS4 construction programs and NPDES CGP SWPPP requirements, permit writers want the permittee to make an honest effort at achieving compliance with their local requirements before referring a violator to the NPDES permitting authority. An example of permit language on NPDES referrals, which require the MS4 permittee to make a good faith effort at ensuring compliance by conducting at least two inspections and notices of violation, follows:

> NPDES Permit Referrals–For those construction projects or industrial facilities subject to the [*insert name of applicable NPDES general construction/industrial permit*], the permittee must:

[2] Adapted from 2009 San Francisco Bay Municipal Regional Stormwater Permit (Order No. R2-2009-0074; www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf) and the Los Angeles MS4 Permit (Part 3; www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ms4_permits/los_angeles/2001-2007/LA_MS4_Permit2001-2007.pdf)

a. Refer non-filers (i.e., those facilities that cannot demonstrate that they obtained permit coverage) to the [*insert name of permitting authority*] within [*insert number of days, e.g. 30 days*] of making that determination. In making such referrals, the permittee must include, at a minimum, the following documentation:

    1. Construction project or industrial facility location.
    2. Name of owner or operator.
    3. Estimated construction project size or type of industrial activity (including SIC code if known).
    4. Records of communication with the owner or operator regarding filing requirements.

b. Refer violations to the [*insert name of permitting authority*] provided that the permittee has made a good faith effort of progressive enforcement to achieve compliance with its own ordinances. At a minimum, the permittee's good faith effort must include documentation of two follow-up inspections and two warning letters or notices of violation. In making such referrals, the permittee must include, at a minimum, the following documentation:

    1. Construction project or industrial facility location
    2. Name of owner or operator
    3. Estimated construction project size or type of industrial activity (including SIC code if known)
    4. Records of communication with the owner or operator regarding the violation, including at least two follow-up inspections, two warning letters or notices of violation, and any response from the owner or operator

It is important to note that a referral to the permitting authority does not relieve the MS4 from its enforcement obligations. The MS4 must continue to work with the permitting authority, using all available enforcement authority in order to gain compliance.

1.4 Requirement to Ensure Adequate Resources to Comply with MS4 Permit

Example Permit Provision

1.4.1 Secure Resources – The permittee must secure the resources necessary to meet all requirements of this permit.

1.4.2 Annual Fiscal Analysis – The permittee must conduct an annual analysis of the capital and operation and maintenance expenditures needed, allocated, and spent as well as the necessary staff resources needed and allocated to meet the requirements of this permit, including any development, implementation, and

enforcement activities required. The analysis must include estimated expenditures for the reporting period, the preceding period, and the next reporting period and be submitted with the annual report.

a. Each analysis must include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

b. Each analysis must include a narrative description of circumstances resulting in a [*insert percentage, e.g. 25 percent or greater*] annual change for any budget line items.

c. Each analysis must include a description of the staff resources necessary to meet the requirements of this permit.

Example Permit Requirement Rationale for the Fact Sheet

The annual fiscal analysis will show the allocated resources, expenditures, and staff resources necessary to comply with the permit, and implement and enforce the permittee's SWMP. (See 40 CFR 122.26(d)(2)(vi). The annual analysis is necessary to show that the permittee has adequate resources to meet all Permit Requirements. The analysis can also show year-to-year changes in funding for the stormwater program. A summary of the annual analysis must be reported in the annual report (see Section 8.4 and Appendix A). This report will help the Permitting Authority understand the resources that are dedicated to compliance with this permit, and to implementation and enforcement of the SWMP, and track how this changes over time.

Recommendations for the Permit Writer

Permit writers should be specific when requesting financial analysis information from the permittee. The Annual Report Template provided in this Guide includes basic questions that should be adequate for Phase II MS4s. However, more detailed information may be warranted from more established programs and larger Phase I MS4s.

Because stormwater is a component in many different program areas, it can often be difficult to get an accurate accounting of costs. For example, inspection staff may have multiple responsibilities in addition to stormwater inspections. Is it appropriate to count an entire inspector's time (i.e. full-time equivalent (FTE)) as a stormwater cost if the inspector is also doing building inspections? Also, some permittees count street sweeping as a stormwater compliance cost, while others consider their street sweeping costs as an aesthetic or air quality cost. Permittees should provide a detailed breakdown of costs, along with background or additional discussion so the permit writer knows what the costs include.

CHAPTER 2: PUBLIC EDUCATION AND OUTREACH/PUBLIC INVOLVEMENT

Introduction

The Phase II Regulations require MS4 permittees to develop programs to educate the public about the impact of stormwater discharges on local waterways and the steps that citizens, businesses, and other organizations can take to reduce the contamination of stormwater (40 CFR 122.34(b)(1),(2)). Phase I MS4 permittees were also required to describe their proposed public education programs as part of their initial permit application, but the regulations are not as specific as Phase II. (See 40 CFR 122.26(d)(2)(iv) (B), (D)(4) and (A)(6)).

Included Concepts

- Developing a comprehensive stormwater education/ outreach program
- Involving the public in planning and implementing the SWMP

As the public gains a greater understanding of the benefits of stormwater management, an MS4 is likely to gain more support for the SWMP (including financial support) and increased compliance with the applicable regulatory requirements as the public understands how their actions impact water quality. Education and awareness programs help change human behavior with respect to reducing the amount of pollution generated from stormwater sources within the MS4 system. In addition to education, encouraging public participation in local stormwater programs can lead to program improvement as well as enabling people to identify and report a pollution-causing activity, such as spotting an illicit discharge.

2.1 Developing a Comprehensive Stormwater Education/Outreach Program

Example Permit Provision

2.1.1 The permittee must:

a. Continue to implement, and revise if necessary within [s*pecify the time when the development of the program must be completed, e.g., within the first year after permit issuance*], a comprehensive stormwater education/outreach program. The program must, at a minimum:

1. Define the goals and objectives of the program based on at least three high priority, community-wide issues (e.g. reduction of nitrogen in discharges from the MS4, promoting pervious techniques used in the MS4);
2. Identify and analyze the target audience(s);
3. Create an appropriate message(s) based on at least three targeted residential issues and three targeted industrial/commercial issues from the suggested list below (or three issues deemed more appropriate to the MS4):

Residential Community

- Residential car washing and auto maintenance control measures
- Off-pavement automobile parking
- Home and garden care activities (pesticides, herbicides, and fertilizers)
- Disposal of household hazardous waste (e.g. paints, cleaning products)
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Litter prevention
- Importance of native vegetation for preventing soil erosion
- Public reporting of water quality issues
- Community activities (monitoring programs, environmental protection organization activities, etc.)
- Pet and other animal wastes

Industrial/Commercial Community

- Automobile repair and maintenance Control measures
- Control measure installation and maintenance
- Lawful disposal of vacuum truck and sweeping equipment waste
- Pollution prevention and safe alternatives
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Equipment and vehicle maintenance and repair
- Importance of good housekeeping (e.g. sweeping impervious surfaces instead of hosing)
- Illicit discharge detection and elimination observations and follow-up during daily work activities
- Water quality impacts associated with land development (including new construction and redevelopment)
- Water quality impacts associated with road resurfacing and repaving

4. Develop appropriate educational materials (e.g. the materials can utilize various media such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, websites);
5. Determine methods and process of distribution;
6. Evaluate the effectiveness of the program; and
7. Utilize public input (e.g., the opportunity for public comment, or public meetings) in the development of the program.

b. During the term of the permit, the permittee must distribute the educational materials, using whichever methods and procedures determined appropriate by the permittee, in such a way that is designed to convey the program's message to [*insert percentage or other appropriate numeric threshold, e.g., 20%*] of the target audience each year.

c. Within [*insert deadline, e.g., within the permit term*], the permittee must assess changes in public awareness and behavior resulting from the implementation of the program such as using a statistically valid survey and modify the education/outreach program accordingly.

d. The permittee must assess its stormwater education/outreach program annually as specified in Part 8.3 of this permit. The permittee must adjust its educational materials and the delivery of such materials to address any shortcomings found as a result of this assessment.

e. Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Without a focused and comprehensive program, outreach and education efforts will likely be poorly coordinated and possibly ineffective. The permit the permittee to develop an education/outreach program that addresses the six steps listed and also found in EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed (www.epa.gov/watertrain/gettinginstep/)*. This guide explains the steps in developing an outreach plan, presents information on creating outreach materials, and provides tips in working with the media. The permittee is encouraged to follow this guide in developing its outreach strategy.

The public education and outreach program must be tailored and targeted to specific water quality issues of concern in the relevant community. These community-wide and targeted issues must then guide the development of the comprehensive outreach program, including the creation of appropriate messages and educational materials. The permit includes a list of potential residential and commercial issues, but the permittee may also choose other issues that contribute significant pollutant loads to stormwater.

The permittee is encouraged to use existing public educational materials in its program. Examples of public educational materials for stormwater are available at EPA's *Nonpoint Source Outreach Toolbox (www.epa.gov/nps/toolbox)*. The permittee is also encouraged to leverage resources with other agencies and municipalities with similar public education goals.

Finally, the underlying principle of any public education and outreach effort is to change behaviors. The permittee must develop a process to assess how well its public education and outreach programs is changing public awareness and behaviors and to determine what changes are necessary to make its public education program more effective. This assessment of public education programs is typically conducted via phone surveys, but other assessment methods that quantify results can be used. The permittee is encouraged to use a variety of assessment methods to evaluate the effectiveness of different public education activities. The permit requires that the first evaluation assessment be conducted before the final year of the permittee's coverage under this permit, before the next permit is issued. The allows the permittee to make changes as appropriate before the next permit application is due, EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed (www.epa.gov/watertrain/gettinginstep/)* can provide useful information on setting up and conducting the evaluations.

Recommendations for the Permit Writer

EPA recommends that the requirement to identify high priority community-wide issues and targeted issues be set at least 3 to 6 months before the stormwater education/outreach program is to be implemented, so the permitting authority can review the issues and provide any feedback before the plan is completed.

The permit can be a means for increasing public awareness and understanding of stormwater impacts on local watersheds, including high quality watersheds that need protecting. EPA recommends that the permit writer consider requiring permittees to identify and describe issues, such as specific pollutants, the sources of those pollutants, impacts on biology, and the physical attributes of stormwater runoff, in their education/outreach program, which affect local watershed(s). Where applicable, the education/outreach program should identify and describe high quality watersheds in need of protection and the issues that may threaten the quality of these waters.

The list in Part 2.1.1.a(3) is not all-inclusive. Therefore, EPA recommends that the permit be written to allow the permittee to indentify priority issue(s) not listed that may contribute a significant pollutant load to stormwater. For Phase I, individual permits, it may be appropriate for the permit writer to specify the priority issues based on known issues, monitoring data, historical trends, etc. Phase II general permits will likely need to allow for more flexibility in selecting priority issues.

In addition, the permit writer will need to consider that DOTs and other "non-traditional" MS4s will likely have different priority concerns than the ones identified in the categories above. In fact, the categories (residential and commercial/industrial) may also need to be changed. In these instances, the permit writer may want to consider having the non-traditional permittees work together with any local government MS4s in their area to maximize the program and cost effectiveness of the outreach.

The permit writer may consider specifying the mechanism the permittee is required to use to measure the awareness of and behavior related to issues concerning stormwater runoff by the general public, or targeted audiences within the general public. Examples of evaluations could include:

- Direct Evaluations
- Surveys
- Tracking the number of attendees
- Interviews
- Review of media clippings
- Tracking the number of stormwater-related calls/emails/letters received

Permit writers should consider whether it is appropriate to require a baseline assessment of the public's awareness of stormwater issues, for example in the second year of the permit term, so that comparisons may be drawn in reference to the baseline. This would likely require the permittee to conduct two assessments in the first permit term that the assessment is required.

2.2 Involving the Public in Planning and Implementing the SWMP

Example Permit Provision

2.2.1 The permittee is required to involve the public in the planning and implementation of activities related to the development and implementation of the SWMP. At a minimum, the permittee must:

a. Establish a citizen advisory group or utilize existing citizen organizations. The permittee may establish a stand-alone group or utilize an existing group or process. The advisory group must consist of a balanced representation of all affected parties, including residents, business owners, and environmental organizations in the MS4 area and/or affected watershed. The permittee must invite the citizen advisory group to participate in the development and implementation of all parts of the community's SWMP.

b. Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).

c. Ensure the public can easily find information about the permittee's SWMP.

2.2.2 Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater management programs can be greatly improved by involving the community throughout the entire process of developing and implementing the program. Involving the public benefits both the permittee itself as well as the community. B y listening to the public's concerns and coming up with solutions together, the permittee will gain the public's support and the community will become invested in the program. The permittees will likewise gain even more insight into the most effective ways to communicate their messages.

This permit requires the involvement of the public, which includes a citizen advisory group or process to solicit feedback on the stormwater program, and opportunities for citizens to participate in implementation of the stormwater program. The citizen advisory group should meet with the local land use planners and provide input on land use code or ordinance updates so that land use requirements incorporate provisions for better management of stormwater runoff and watershed protection. Public participation in implementation of the stormwater program can include many different activities such as stream clean-ups, storm drain markings, and volunteer monitoring.

Permittees are encouraged to work together with other entities that have an impact on stormwater (for example, schools, homeowner associations, DOTs, other MS4 permittees). Permittees are also encouraged to use existing advisory groups or processes in order to implement these public involvement requirements.

Recommendations for the Permit Writer

Especially for Phase I permittees, permit writers may consider requiring more specific information such as requiring at least one contact that the public can reach (including phone number and/or e-mail address) be clearly posted on the website. The contact may be a general contact or a specific person. The permitting authority may want the MS4 to have a mechanism for the public to comment year round, not just at public meetings. This could be facilitated by a webpage and email or a stormwater hotline.

Some Phase II permittees may find it more difficult to establish and maintain a formal citizen advisory group simply because they tend to have smaller populations. The permit writer may want to provide flexibility for the Phase II permittees to utilize the public involvement mechanism which best suits their individual community. For example, groups which are already involved with other aspects of municipal governance or established events where input could be solicited (i.e. farmers markets, festivals) may serve to meet the objective of this section.

CHAPTER 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Introduction

Phase I (see 40 CFR 122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)) and Phase II stormwater management programs (see 40 CFR 122.26(d)(2)(iv)(B)) are required to address illicit discharges into the MS4 system. An illicit discharge is defined as any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except allowable discharges pursuant to an NPDES permit (40 CFR 122.26(b)(2)). In addition to requiring permittee to have the legal authority to prohibit non-stormwater discharges from entering storm sewers (CWA Section 402(p)(3)(B)) (see Chapter I), MS4 permits must also require the development of a comprehensive, proactive Illicit Discharge Detection Elimination (IDDE) program.

Included Concepts

- IDDE program development
- MS4 mapping
- Identification of priority areas
- Field screening
- IDDE source investigations and elimination
- Public reporting of non-stormwater discharges and spills
- Illicit discharge education and training

An effective IDDE program is more than just a program to respond to complaints about illicit discharges or spills. Permittees must proactively seek out illicit discharges, or activities that could result in discharges, such as illegal connections to the storm sewer system, improper disposal of wastes, or dumping of used motor oil or other chemicals.

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an updated map of the storm drain system and a formal plan of how to locate illicit discharges and how to respond to them once they are located or reported. The permittee must provide a mechanism for public reporting of illicit discharges and spills, as well as an effective way for staff to be alerted to such reports. Regular field screening of outfalls for non-stormwater discharges needs to occur in areas determined to have a higher likelihood for illicit discharges and illegal connections. Proper investigation and enforcement procedures must be in place to eliminate the sources of the discharges, as well. Finally, in order for the permittee to adequately detect and eliminate sources of illicit discharges, both field and office staff must be properly trained to recognize and report the discharges to the appropriate parties.

EPA recommends that permittees refer to the Center for Watershed Protection's guide on *Illicit Discharge Detection and Elimination (IDDE): A Guidance Manual for Program Development and Technical Assistance* (IDDE Manual, available at www.cwp.org) when developing an IDDE program.

3.1 IDDE Program Development

Example Permit Provision

3.1.1 The permittee must continue to implement a program to detect, investigate, and eliminate non-stormwater discharges (see Part 1.2.2), including illegal dumping, into its system. The IDDE program must include the following:

a. An up-to-date storm sewer system map (see Part 3.2).
b. Procedures for identifying priority areas within the MS4 likely to have illicit discharges, and a list of all such areas identified in the system (see Part 3.3)
c. Field screening to detect illicit discharges (see Part 3.4)
d. Procedures for tracing the source of an illicit discharge (see Part 3.5)
e. Procedures for removing the source of the discharge (see Part 3.5)
f. Procedures for program evaluation and assessment (see Part 8.3)
g. Procedures to prevent and correct any on-site sewage disposal systems that discharge into the MS4. [3]

3.1.2 In implementing the IDDE program, the permittee may conduct such investigations, contract for investigation, coordinate with storm drain investigation activities of others, or use any combination of these approaches.

3.1.3 For non-traditional MS4 permittees, if illicit connections or illicit discharges are observed related to another operator's municipal storm sewer system then the permittee must notify the other operator within [*insert applicable deadline, e.g., within 48 hours*] of discovery.

3.1.4 If another operator notifies the permittee of an illegal connection or illicit discharge to the municipal separate storm sewer system then the permittee must follow the requirements specified in Part 3.5.4.

3.1.5 Written procedures for implementing this program, including those components described in Parts 3.1 – 3.7 must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

EPA stormwater regulations define "illicit discharge" as "any discharge to a municipal separate storm sewer that is not composed entirely of stormwater" except discharges resulting from fire fighting activities and discharges from NPDES permitted sources (see 122.26(b)(2)). The applicable regulations state that the following non-stormwater discharges may be allowed if they are not determined to be a significant source of pollutants to the MS4 : water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. If, however, these discharges are determined to be a significant source of pollution then they are prohibited.

Examples of common sources of illicit discharges in urban areas include apartments and homes, car washes, restaurants, airports, landfills, and gas stations. These so called "generating sites" discharge sanitary wastewater, septic system effluent, vehicle wash water, washdown from

[3] Vermont Phase II General Permit (www.vtwaterquality.org/stormwater/htm/sw_ms4.htm)

grease traps, motor oil, antifreeze, gasoline and fuel spills, among other substances. Although these illicit discharges can enter the storm drain system in various ways, they generally result from either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system, spills, or "midnight dumping"). Illicit discharges can be further divided into those discharging continuously and those discharging intermittently.

One way of locating these dry weather discharges is to perform field screening of outfalls. If no rain has occurred prior to the screening then it is likely that any flow observed at an outfall is either groundwater or an illicit discharge. It is important to utilize resources effectively and to target field screening activities in priority areas that are the most common sources of illicit discharges. For example, municipalities with older neighborhoods should prioritize those areas for targeted investigation due to the likelihood of cross connections with the sanitary sewer. Older parts of the storm drain system may also be deteriorating and require repair or replacement.

In addition, it is important that permittees establish clear policies and procedures for tracing and eliminating illicit discharges to ensure that individual incidents are addressed consistently. These policies should include procedures to notify neighboring localities if a discharge is discovered either originating on or discharging to the neighboring storm sewer system.

Additional information is available in the Center for Watershed Protection's *IDDE Manual.*

Recommendations for the Permit Writer

In some instances the permit writer may choose to include more specific requirements. For example, if the priority areas are already known, then Part 3.1.1.a may be more specifically worded. In addition, regulations governing Phase I MS4 permits have somewhat different requirements including specific field screening procedures (40 CFR 122.26(d)(1)(iii)(D) and 122.26(d)(2)(iii)) and a program to detect and remove illicit discharges and improper disposal into the storm sewer (40 CFR 122.26(d)(2)(iv)(B).

3.2 MS4 Mapping

Example Permit Provision

3.2.1 The permittee must maintain an up-to-date and accurate storm sewer system map.

a. The storm sewer system map must show the following, at a minimum:

1. The location of all MS4 outfalls and drainage areas contributing to those outfalls that are operated by the permittee, and that discharge within the permittee's jurisdiction to a receiving water
2. The location (and name, where known to the permittee) of all waters receiving discharges from those outfall pipes. Each mapped outfall must be given an individual alphanumeric identifier, which must be noted on the map. When possible, the outfalls must be located using a geographic

position system (GPS) and photographs should be taken to provide baseline information and track operation & maintenance needs over time.[4]

3. Priority areas identified under Part 3.3
4. Field screening stations identified under Part 3.4.2.a

b. A copy of the storm sewer system map must be available onsite for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an up-to-date map of its storm drain system. This is critical in order to isolate the potential source of the non-stormwater discharges and the areas of potential impact. Ideally, the information would be available as a geographic information system (GIS) layer in a geo-locational database, however, paper maps are sufficient providing they have the necessary reference information.

The permit primarily requires the mapping of outfalls, drainage areas contributing to those outfalls, and receiving waters. The municipal facility inventory created to comply with the pollution prevention/good housekeeping requirements (see Part 6.1) must also be included either on this sewer system map or on a separate MS4 map.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a map indicating outfalls and the waters that receive the MS4 discharges. This map is to be used to identify priority areas that have a reasonable potential for illicit discharges. The mapping requirements should be adjusted based on any existing mapping of the MS4 that has already been completed. For example, Phase I mapping should have been initiated during the initial permit application process. This map should not be static, however, since it would need to be updated as development patterns change and new collection and discharge components of the MS4 are added. The mapping requirement could be supplemented by adding a requirement to "modify existing maps to clearly identify all receiving waters."

3.3 Identification of Priority Areas

Example Permit Provision

3.3.1 The permittee must continue to identify the following as priority areas [*insert areas that may be more applicable to the jurisdiction*]:

a. Areas with older infrastructure that are more likely to have illicit connections;

[4] New Jersey Phase II General Permit (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf), with modifications

b. Industrial, commercial, or mixed use areas;

c. Areas with a history of past illicit discharges;

d. Areas with a history of illegal dumping;

e. Areas with onsite sewage disposal systems;

f. Areas with older sewer lines or with a history of sewer overflows or cross-connections; and

g. Areas upstream of sensitive waterbodies.

3.3.2 The permittee must document the basis for its selection of each priority area and create a list of all priority areas identified in the system. This priority area list must be updated [*insert frequency, e.g., annually*] to reflect changing priorities and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

The permit requires an evaluation of the permittee's neighborhoods and land uses to identify areas that are more likely to have illicit discharges. These areas must be prioritized for more frequent screening and investigations. Each permittee will have a different set of priority areas: newer communities with modern infrastructure are less likely to have sewer cross-connections and illegal connections to the storm drain system, whereas towns with rural areas may place an emphasis on illegal dumping and onsite sewage disposal systems. Prioritization must be based not only on land use but also on prior history and frequency of problems.

The identification of priority areas must include "hotspots" or areas where dumping, spills, or other illicit discharges are a common occurrence. These hotspots will help identify potential field screening locations and may help target educational activities. For example, if evidence of motor oil dumping is found quite frequently and traced to the same apartment complex, information about motor oil disposal could be distributed to residents in response.

Recommendations for the Permit Writer

Phase I permittees should have been documenting information regarding high priority areas for several permit terms. In these instances the permit writer should require the permittee to continually evaluate and update the priority areas as development patterns change or new "hotspot" areas are found. If the permit writer has information regarding priority areas which are specific to the Phase I permittee (e.g. certain high priority watersheds or land use types which typically discharge a pollutant of concern) then those specific areas should be specified as high priority.

3.4 Field Screening

Example Permit Provision

3.4.1 The permittee must continue to implement and revise if necessary within [*specify deadline for completion*] a written dry weather field screening and analytical monitoring procedures to detect and eliminate illicit discharges to the MS4. These procedures must be included as part of the IDDE program, and incorporated into the permittee's SWMP document. Dry weather field screening and analytical monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations.

3.4.2 Conduct dry weather field screening and analytical monitoring. At a minimum, the permittee must:

a. Identify a minimum of [*specify number*] stations within the priority areas it identified in Part 3.3.1 at which field screening and analytical monitoring will take place. In addition, if the permittee is made aware of non-stormwater discharges that occur during the permit term outside of the priority areas, the permittee must include field screening stations in those areas;

b. Conduct dry weather field screening and analytical monitoring at each station identified above at least once [*insert timeframe for dry part of year, or specify annually*].

c. Sample runoff according to requirements outlined in (1) and (2) below if flow or ponded runoff is observed at a field screening station and there has been at least seventy-two (72) hours of dry weather. The permittee must also record general information such as time since last rain, quantity of last rain, site descriptions (e.g., conveyance type, dominant watershed land uses), flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).

1. Field screening requirements: The permittee is required to conduct a field screening analysis for the following constituents. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136.

   [*insert specific indicator pollutants that the permittee is required to monitor for.]*

2. Analytical monitoring requirements: In addition to field screening, the permittee is required to collect samples for analytical laboratory analysis of the following constituents for a minimum of [*insert percentage*] of the samples taken. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136.

   [*insert specific pollutants of concern that the permittee is required to monitor for*]

3. Develop benchmark concentration levels for dry weather field screening and analytical monitoring results whereby exceedance of the benchmark will

require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the benchmark.

d. Conduct a follow-up investigation under Part 4.5 if the benchmarks associated with the constituents listed above in Part 3.4.2.c(1) and (2) are exceeded; and

e. Make and record all applicable observations and select another station from the list of alternate stations for monitoring if, after two subsequent field screening tests have been completed, the field screening station is dry (i.e., no flowing or ponded runoff).

3.4.3 The permittee must assess its IDDE program every [*specify deadline for completion, e.g., once per permit term*] to determine if updates are needed. Where updates are found to be necessary, the permittee must make such changes [*insert deadline for finalizing changes*].

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the development of a dry weather field screening and analytical monitoring program. The program must identify stations (e.g., outfalls) within the identified "priority areas" where the field screening will be conducted. At a frequency set by the permitting authority, the permittee must screen outfalls during dry weather and, if flow or ponded water is observed, collect a sample for field screening and analytical monitoring.

Visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source will assist permittees in determining the source of illicit discharges. For example, the presence of surfactants is an indicator that sewage could be present in the discharge (e.g., soaps being discharged into sewer system as an indicator that wastewater is being discharged). Specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH, and other chemicals may similarly be indicative of industrial sources.

The permit requires the permittee to develop benchmarks for dry weather screening and analytical monitoring results. An exceedance of the benchmark concentration level indicates the need to conduct a follow-up investigation. The results will help the permittee narrow down the possible sources causing the benchmark to be exceeded so that they can then be eliminated. This is a common protocol to trigger additional monitoring and/or implementation of BMPs at stormwater discharges (e.g. MSGP has sector-specific benchmark monitoring requirements).

Recommendations for the Permit Writer

There are many options for field screening programs available to the permit writer that will meet the requirements of the regulations. Phase I regulations require that permittees conduct initial field screening of the entire MS4 during the permit application process as well as on-going field screening activities during the life of the permit. Based on this historical information and data, permit writers may want to specify in Phase I individual permits which priority areas must be screened. They may

also want to specify how many outfalls or what percentage of the outfalls should be inspected during the permit term.

In addition, for new Phase II permittees, permit writers may want to require screening of all priority areas during the first permit term and then require on-going screening in the areas where illicit discharges were identified.

This permit language includes analytical monitoring at dry weather field screening locations. The monitoring required during field screening (Part 3.4.2.c.1.) should include appropriate indicator pollutants, i.e. pollutants that will indicate the presence of some sort of illicit discharge. For example, Phase II NPDES regulations suggest sampling for specific conductivity, ammonia, surfactant and/or fluorescence concentration, pH and other chemicals indicative of industrial sources.

Permit writers should select the additional pollutants to be monitored based upon specific pollutants of concern for the receiving water(s) and/or specific indicator pollutants which can assist the MS4 in the location of particular discharges of concern and the potential water quality impact of the discharge. For example, the Phase I San Diego MS4 Permit requires that permittees monitor the following parameters during field screening: total hardness, oil and grease, diazinon and chlorpyrifos, cadmium (dissolved), lead (dissolved), zinc (dissolved), copper (dissolved), Enterococcus bacteria, total coliform bacteria, and fecal coliform bacteria.

Permit writers should encourage or even require permittees to use the CWP *IDDE Manual* and/ or EPA's 2008 Multi-Sector General Permit (www.epa.gov/npdes/stormwater/msgp) to develop benchmarks for each parameter.

In the *IDDE Manual* it is strongly recommended that benchmarks be developed specifically for each area. As an example, the *IDDE Manual* lists the following benchmark concentrations (Table 3-1) to identify industrial discharges:

Table 3-1. Benchmark concentrations to identify Industrial Discharges (from CWP IDDE Manual, Table 45)

Indicator Parameter	Benchmark Concentration
Ammonia	>= 50 mg/L
Color	>= 500 units
Conductivity	>= 2,000 µS/cm
Hardness	<= 10 mg/L as CaCO3 or >= 2,000 mg/L as CaCO3
pH	<= 5
Potassium	>= 20 mg/L
Turbidity	>= 1,000 NTU

For comparison purposes, the chemical fingerprint for different flow types in Alabama is presented in Table 3-2. The chemical fingerprint for each flow type can differ regionally, so permittees should develop their own "fingerprint" library by sampling each flow type.

Table 3-2. Comparative "Fingerprint" (Mean Values) of Flow Types (from CWP IDDE Manual, Table 1)

Flow Type	Hardness (mg/L as CaCO3)	NH3 (mg/L)	Potassium (mg/L)	Conductivity (µS/cm)	Fluoride (mg/L)	Detergents (mg/L)
Sewage	50 (0.26)	25 (0.53)	12 (0.21)	1215 (0.45)	0.7 (0.1)	9.7 (0.17)
Septage	57 (0.36)	87 (0.4)	19 (0.42)	502 (0.42)	0.93 (0.39)	3.3 (1.33)

Table 3-2. Comparative "Fingerprint" (Mean Values) of Flow Types (from CWP IDDE Manual, Table 1)						
Laundry Washwater	45 (0.33)	3.2 (0.89)	6.5 (0.78)	463.5 (0.88)	0.85 (0.4)	758 (0.27)
Car Washwater	71 (0.27)	0.9 (1.4)	3.6 (0.67)	274 (0.45)	1.2 (1.56)	140 (0.2)
Plating Bath (Liquid Industrial Waste)	14330 (0.32)	66 (0.66)	1009 (1.24)	10352 (0.45)	5.1 (0.47)	6.8 (0.68)
Radiator Flushing (Liquid Industrial Waste)	5.6 (1.88)	26 (0.89)	2801 (0.13)	3280 (0.21)	149 (0.16)	15 (0.11)
Tap Water	52 (0.27)	<0.06 (0.55)	1.3 (0.37)	140 (0.07)	0.94 (0.07)	0 (NA)
Groundwater	38 (0.19)	0.06 (1.35)	3.1 (0.55)	149 (0.24)	0.13 (0.93)	0 (NA)
Landscape Irrigation	53 (0.13)	1.3 (1.12)	5.6 (0.5)	180 (0.1)	0.61 (0.35)	0 (NA)
The number in parentheses after each concentration is the Coefficient of Variation. Source: Robert Pitt data from CWP IDDE Manual						

The permit writer may also want to require the permittee to analyze a certain number of discharge samples to characterize the concentration of certain pollutants in the different drainage areas. This characterization sampling would be in addition to any characterization sampling completed for the Phase I permit application. This type of sampling would not necessarily aid in the elimination of the source of the discharge, however, the data would be useful in characterizing the discharge from the MS4.

For those areas that have ponding or flow during dry weather, permit writers may consider allowing permittees the flexibility to look for indicators of an illicit discharge before conducting water quality tests due to baseline flow (e.g. baseflow, groundwater flow, irrigation return flows) in certain areas. In these cases, permit writers could require that sensory indicators (i.e. odor, color, turbidity, and floatables) be evaluated.

For additional guidance on field screening, the *IDDE Manual* describes an outfall reconnaissance inventory (ORI) to assess outfalls and conduct indicator monitoring to help identify illicit discharges.

Regardless of the field screening scheme, it is also very important to emphasize in the permit conditions that monitoring must be done in compliance with 40 CFR 136.

3.5 IDDE Source Investigation and Elimination

Example Permit Provision

3.5.1 The permittee is required to develop written procedures for conducting investigations into the source of all identified illicit discharges, including approaches to requiring such discharges to be eliminated.

3.5.2 Minimum Investigation Requirements – At a minimum, the permittee is required to conduct an investigation(s) to identify and locate the source of any continuous or

intermittent non-stormwater discharge within [*specify time period*] of becoming aware of the illicit discharge.

a. Illicit discharges suspected of being sanitary sewage and/or significantly contaminated must be investigated first.

b. Investigations of illicit discharges suspected of being cooling water, wash water, or natural flows may be delayed until after all suspected sanitary sewage and/or significantly contaminated discharges have been investigated, eliminated and/or resolved.

c. The permittee must report immediately the occurrence of any dry weather flows believed to be an immediate threat to human health or the environment to [*insert state water quality emergency contact phone number*].

d. The permittee must track all investigations to document at a minimum the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.

3.5.3 Determining the Source of the Illicit Discharge –The permittee is required to determine and document through its investigations, carried out in Part 3.5.1, the source of all illicit discharges. If the source of the illicit discharge is found to be a discharge authorized under [*insert NPDES discharge permit reference*] of an NPDES permit, no further action is required.

a. If an illicit discharge is found, but within six (6) months of the beginning of the investigation neither the source nor the same non-stormwater discharge has been identified/observed, then the permittee must maintain written documentation for review by the permitting authority.

b. If the observed discharge is intermittent, the permittee must document that a minimum of three (3) separate investigations were made to observe the discharge when it was flowing. If these attempts are unsuccessful, the Permittee must maintain written documentation for review by the permitting authority. However, since this is an ongoing program, the Permittee should periodically recheck these suspected intermittent discharges.[5]

3.5.4 Corrective Action to Eliminate Illicit Discharge – Once the source of the illicit discharge has been determined, the permittee must immediately notify the responsible party of the problem, and require the responsible party to conduct all necessary corrective actions to eliminate the non-stormwater discharge within [*specify deadline*]. Upon being notified that the discharge has been eliminated, the permittee must conduct a follow-up investigation and field screening, consistent with Part 3.4, to verify that the discharge has been eliminated. The permittee is required to document its follow-up investigation. The permittee may seek recovery and remediation costs from responsible parties consistent with Part 1.2, or require compensation for the cost of field screening and investigations. Resulting enforcement actions must follow the SWMP ERP.

[5] New Jersey Phase II Permit (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The Clean Water Act, section 402(p)(3)(B)(ii) requires MS4 permits to "effectively prohibit non-stormwater discharges into the storm sewers." The permit implements this requirement, in part by requiring the development of procedures to investigate and eliminate illicit discharges. The permittee must develop a clear, step-by-step procedure for conducting the investigation of illicit discharges. The procedure must include an investigation protocol that clearly defines what constitutes an illicit discharge "case" and when a case is considered "closed." In many circumstances, sources of intermittent, illicit discharges are very difficult to locate, and these cases may remain unresolved. The permit requires that each case be conducted in accordance with the SOPs developed to locate the source and conclude the investigation, after which the case may be considered closed. A standard operating procedure (SOP) document is required in order to provide investigators with guidance and any necessary forms to ensure that consistent investigations occur for every illicit discharge incident.

Physical observations and field testing can help narrow the identification of potential sources of a non-stormwater discharge; however it is unlikely that either will pinpoint the exact source. Therefore, the permittee will need to perform investigations "upstream" to identify illicit connections to systems with identified problem outfalls.

Once the source of the non-stormwater discharge is determined through investigation, corrective action is required to eliminate the problem source. Resulting enforcement actions must follow the SWMP ERP. The permittee may conduct remediation activities on its own, in which case the permittee must require compensation for any and all costs related to eliminating the non-stormwater discharge. Non-traditional MS4 permittees may be limited in their ability to seek recovery.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a process to trace the source of illicit discharges and eliminate them. The regulations also state that appropriate enforcement procedures and actions must be included in this process.

3.6 Public Reporting of Non-Stormwater Discharges and Spills

Example Permit Provision

3.6.1 The permittee must promote, publicize, and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point, including phone numbers for complaints and spill reporting, and publicize to both internal permittee staff and the public. If 911 is selected, the permittee must also create, maintain, and publicize a staffed, non-emergency phone number with voicemail, which is checked daily.

3.6.2 The permittee must develop a written spill/dumping response procedure, and a flow chart or phone tree, or similar list for internal use, that shows the procedures for responding to public notices of illicit discharges, the various responsible agencies

and their contacts, and who would be involved in illicit discharge incidence response, even if it is a different entity other than the permittee.

3.6.3 The permittee must conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party to achieve and maintain compliance.[6]

Example Permit Requirement Rationale for the Fact Sheet

This provision serves to implement, in part, the statutory requirement that MS4 permits effectively prohibit non-stormwater discharges. Spills, leaks, sanitary sewer overflows, and illicit dumping or discharges can introduce a range of stormwater pollutants into the storm system. Prompt response to these occurrences is the best way to prevent or reduce negative impacts to waterbodies. The permittee must develop a spill response SOP that includes an investigation procedure similar to or in conjunction with the investigation SOP developed for illicit discharges in general (see Section 3.5). Often, a different entity might be responsible for spill response in a community (i.e. fire department), therefore, it is imperative that adequate communication exists between stormwater and spill response staff to ensure that spills are documented and investigated in a timely manner.

A stormwater hotline can be used to help permittees become aware of and mitigate spills or dumping incidents. Spills can include everything from an overturned gasoline tanker to sediment leaving a construction site to a sanitary sewer overflow entering into a storm drain. Permittees must set up a hotline consisting of any of the following (or combination thereof): a dedicated or non-dedicated phone line, E-mail address, or website.

Recommendations for the Permit Writer

Spills which occur due to municipal staff activities are considered illicit discharges, but, spill prevention could also be addressed in the municipal operations/good-housekeeping portion of the permit as in this Guide (Chapter 6).

Facilitating public reporting of illicit discharges is specifically required in the Phase I regulations and as a part of the plan to detect and address illicit discharge, EPA recommends that Phase II permittees also develop a venue to promote, publicize, and facilitate public reporting of these discharges.

It is also noteworthy that smaller Phase II MS4s may utilize outside agency resources for spill response and/or they may use a neighboring locality. In this case, permittees will need to coordinate with these agencies to ensure appropriate spill response occurs and the necessary documentation is completed.

[6] San Francisco Municipal Regional Stormwater permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

3.7 Illicit Discharge Education & Training

Example Permit Requirement

*3.*7.1 The permittee must continue to implement a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. Contact information, including the procedure for reporting an illicit discharge, must be included in the permittee's fleet vehicles that are used by field staff. Training program documents must be available for review by the permitting authority.

3.7.2 By no later than [*insert applicable deadline, e.g., 6 months after permit authorization*], the permittee must train all staff identified in Section 3.7.1 above on the identification of an illicit discharge or connection, and on the proper procedures for reporting and responding to the illicit discharge or connection. Follow-up training must be provided as needed to address changes in procedures, techniques, or staffing. The permittee must document and maintain records of the training provided and the staff trained. [7]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to train field staff, who may come into contact or observe illicit discharges, on the identification and proper procedures for reporting illicit discharges. Field staff to be trained may include, but are not limited to, municipal maintenance staff, inspectors, and other staff whose job responsibilities regularly take them out of the office and into areas within the MS4 area. Permittee field staff are out in the community every day and are in the best position to locate and report spills, illicit discharges, and potentially polluting activities. With proper training and information on reporting illicit discharges easily accessible, these field staff can greatly expand the reach of the IDDE program.

Recommendations for the Permit Writer

Permit writers may wish to require training of office staff (or all permittee staff), as well as field staff, as they can act as additional "eyes and ears" since they typically live in the community. The training should consist of how to identify illicit discharges and dumping, as well as the appropriate people to contact based on the type of discharge that is occurring.

Existing permittees (Phase I and Phase II) may have been training staff for several permit terms. For this reason, the permit writer may want the permittee to focus on annual "refresher" trainings for existing staff and new employees within a certain time of their hire date.

[7] Washington State Phase I Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf)

CHAPTER 4: CONSTRUCTION

Introduction

MS4 permits must address construction-related requirements (and often more specific state requirements) found in the following Federal regulations – Phase I MS4 Regulations 40 CFR 122.26(d)(2)(iv)(D) and Phase II MS4 Regulations 40 CFR 122.34(b)(4). Specific Permit Requirements should vary based on state requirements, rainfall amounts or other site-specific factors, but, in general, the requirements imposed on MS4 permittees for stormwater management of discharges associated with construction activities consist of several common requirements.

Included Concepts

- Construction requirements and control measures
- Construction site inventory
- Construction plan review procedures
- Construction site inspections and enforcement
- MS4 staff training
- Construction site operator education and public involvement

Permits must require that the permittee enact, to the extent allowed by State, Tribal or local law, an ordinance or other regulatory mechanism as part of the construction program that controls runoff from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. As part of the ordinance or other regulatory mechanism, the permittee should provide commonly understood and legally binding definitions. These terms should be defined consistently across other related guidance and regulatory documents. Note that EPA's recommended definitions addressing this requirement are included in Appendix B.

Permits must require that MS4 permittees ensure that construction site operators select and implement appropriate erosion and sediment control measures to reduce or eliminate the impacts to receiving waters. The permit can require that permittees develop their own standards and specifications, but often it is preferable to require the permittees to utilize existing guidance that is approved by the permitting authority.

The permit must require that the permittee establish review procedures for construction site plans to determine potential water quality impacts and ensure the proposed controls are adequate. These procedures must include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. In addition, the permit must include requirements for inspection and enforcement of erosion and sediment control measures once construction begins.

Finally, Phase I MS4 permits must require the development of educational materials and training for construction site operators, and EPA recommends that training on stormwater controls for construction site operators be mandated in Phase II MS4 permits as well. Training should address site requirements for control measures, local stormwater requirements, enforcement activities, and penalties for non-compliance.

4.1 Construction Requirements and Control Measures

Example Permit Provision

4.1.1 The permittee must continue to implement a program which requires operators of public or private "construction activities" to select, install, implement, and maintain stormwater control measures that comply with [*Insert reference to documents including any and all applicable erosion and sediment control, pollution prevention, and other stormwater requirements, including applicable CGP, State, and local requirements*.] "Construction activity" for this permit includes, at a minimum, all public and private construction sites that result in a total land disturbance of [*insert disturbance threshold – either one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale, or an alternative threshold that includes disturbances of less than one acre*]. Written procedures for implementing this program, including the components described in Parts 4.2 – 4.6, must be incorporated into the SWMP document. The permittee's construction program must ensure the following minimum requirements are effectively implemented for all construction activity discharging to its MS4:

[*Insert specific minimum requirements, such as:*

a. **Erosion and Sediment Controls**. Design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:

(1) Control stormwater volume and velocity within the site to minimize soil erosion;

(2) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;

(3) Minimize the amount of soil exposed during construction activity;

(4) Minimize the disturbance of steep slopes;

(5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;

(6) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible; and

(7) Minimize soil compaction and, unless infeasible, preserve topsoil.

b. **Soil Stabilization**. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed within a period of

time determined by the permittee. In arid, semiarid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee.

c. **Dewatering**. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:

(1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

(2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and

(3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited Discharges**. The following discharges are prohibited:

(1) Wastewater from washout of concrete, unless managed by an appropriate control;

(2) Wastewater from washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials;

(3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,

(4) Soaps or solvents used in vehicle and equipment washing.

f. **Surface Outlets**. When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater discharges from construction sites generally includes sediment and other pollutants such as phosphorus and nitrogen, turbidity, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. The permit requires MS4 permittees to require construction site operators at defined sites to meet certain minimum stormwater requirements relating to erosion and sediment control and pollution prevention, and to meet other restrictions imposed on them by the State, or local regulations. These minimum requirements clearly specify the expectations for addressing

erosion control, sediment control, and pollution prevention control measures at construction sites.

EPA's Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category (74 FR 62996, December 1, 2009) require construction site owners and operators to implement a range of erosion and sediment control measures and pollution prevention practices to control pollutants in discharges from construction sites. These standards will be required in state construction general permits as they are reissued. These standards are broadly applicable to all construction activity disturbing one or more acres. They provide an objective means of describing appropriate erosion and sediment control best management practices, pollution prevention controls on construction site waste and storage of building materials and other reasonable components of the permittee's program to reduce pollutants to the maximum extent practicable in stormwater from construction sites that discharge through the MS4.

Recommendations for the Permit Writer

The Phase II stormwater regulations require permittees to develop a construction site program addressing "land disturbance of greater than or equal to one acre." However, some states may have more stringent requirements that apply to some permittees, or the permit writer may have discretion to lower the one acre threshold if this threshold is too high for particular permittees. For example, smaller, built-out cities may have many small redevelopment projects that fall below the one acre threshold. In such cases, controlling construction site stormwater entering the MS4 to the maximum extent practicable may require stormwater controls at smaller sites. Permit writers should review available construction and planning data from the MS4 to determine an appropriate project size threshold.

The example permit provision's list of minimum requirements for erosion controls, sediment controls, and pollution prevention measures is intended to establish specific requirements to implement the broader requirements in the Phase II rule (40 CFR 122.24(b)(4)). The list of minimum requirements in the example permit provision are from EPA's Construction and Development Effluent Guidelines (published December 1, 2009) which will eventually be required in all NPDES stormwater permits issued to construction site operators. At a minimum, the permit should reference the applicable state standards and, where appropriate, any local standards as well. Permit writers may wish to modify these specific requirements based on current standards or guidance on construction site stormwater controls in the State.

4.2 Construction Site Inventory

Example Permit Provision

4.2.1 The permittee must continue to maintain an inventory of all active public and private construction sites that result in a total land disturbance of [*insert disturbance threshold from Part 4.1.1.*]. The inventory must be continuously updated as new projects are permitted and projects are completed. The inventory must contain

relevant contact information for each project (e.g., name, address, phone, etc.), the size of the project and area of disturbance, whether the project has submitted for permit coverage under [*insert name of applicable NPDES general construction permit*], the date the permittee approved the [*insert name of local erosion and sediment control/stormwater plan]* in accordance with Part 4.3, and the permit tracking number issued by [*insert name of permitting authority*]. The permittee must make it available to the permitting authority upon request.

Example Permit Requirement Rationale for the Fact Sheet

To effectively conduct inspections, the permittee must know where construction activity is occurring. A construction site inventory tracks information such as project size, disturbed area, distance to any waterbody or flow channel, when the erosion and sediment control/stormwater plan was approved by the Permittee, and whether the project is covered by the permitting authority's construction general permit. This inventory will allow the permittee to track and target its inspections.

Recommendations for the Permit Writer

Because of state or local construction permitting requirements, many permittees have some system in place to track construction activity in their jurisdiction. If this is the first MS4 permit issued to the permittee, the permit writer should include a deadline for the development of the initial inventory.

Permit writers may want to request electronic copies of the inventory quarterly or yearly, if that information will be used by the State permitting or inspection staff.

4.3 Construction Plan Review Procedures

Example Permit Provision

4.3.1 The permittee must continue to require each operator of a construction activity to prepare and submit a [*insert name of local erosion and sediment control/stormwater plan*] prior to the disturbance of land for the permittee's review and written approval prior to issuance of a [*insert appropriate permit, i.e. grading or construction*]. The permittee must make it clear to operators of construction activity that they are prohibited from commencing construction activity until they receive receipt of written approval of the the plans. If the [*insert name of local erosion and sediment control/stormwater plan*] is revised, the permittee must review and approve those revisions.

4.3.2 The permittee must continue to implement site plan review procedures that meet the following minimum requirements:

a. The permittee must not approve any [*insert name of local erosion and sediment*

control/stormwater plan] unless it contains appropriate site-specific construction site control measures that meet the minimum requirements in Part 4.1.1 of this permit.

b. The stormwater pollution prevention plan (SWPPP) developed pursuant to [*insert name of applicable NPDES general construction permit*] may substitute for the [*insert name of local erosion and sediment control/stormwater plan*] for projects where a SWPPP is developed. The permittee is responsible for reviewing those portions of the SWPPP that comply with the [*insert name of local erosion and sediment control/stormwater plan*].

c. The [*insert name of local erosion and sediment control/stormwater plan*] must include the rationale used for selecting control measures, including how the control measure protects a waterway or stormwater conveyance.

d. The permittee must use qualified individuals, knowledgeable in the technical review of [*insert name of local erosion and sediment control/stormwater plan*] to conduct such reviews.

e. The permittee must document its review of each [*insert name of local erosion and sediment control/stormwater plan*] using a checklist or similar process. [8]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the review and prior approval of all local erosion and sediment control plans/stormwater plans to ensure that construction activities adhere to the permittee's minimum stormwater control requirements. Adequate review of erosion and sediment control/stormwater plans is necessary to verify compliance with all applicable requirements in the permittee's ordinance or other regulatory mechanism, as well as compliance with control measure standards and specifications. A formalized review procedure ensures consistent review of plans by specifying the requirements for plans being submitted, the schedule for review, and general conditions for approval. The site plan review process also provides a way to track construction activities and enforce standards.

A good site plan review process provides the permittee with the opportunity to comment – early and often – on a project's proposed number, type, location, and sizing of stormwater control measures that will be in place prior to, during, and at the conclusion of active construction. It is important to keep in mind that a site plan is a "living document" that may change during the life of the project; however, it is critical that the site plan be adequately reviewed and initially based on established policy, guidelines, and standards. The plan is the framework for stormwater control implementation, as well as the basis of any enforcement action on a project site.

The permit requires the permittee to review plans before construction activity begins to ensure that the plans are consistent with the standards specified in Part 4.1.1. The permit language also includes some key requirements during the plan review process:

[8] 2009 Ventura County, CA Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ventura_ms4/09-0057/Transmittal%20Letter%20and%20MS4%20Permit%20Order%20No%2009%200057.pdf)

- If a SWPPP is developed for the State construction general permit, that plan may substitute for the local plan if it also includes/addresses the local requirements.
- The plan must include the rationale used for selecting or rejecting control measures (for example, why a silt fence was selected or why a sediment trap was not included).
- Finally, plan reviewers must be trained and must document their review. For example, this can be done by using a checklist or similar process.

Recommendations for the Permit Writer

Some MS4 permits include a requirement that, prior to approval of local permits, the permittee must verify that the construction site operator has existing coverage under the State's Construction General Permit, if necessary. This requirement helps to reduce the number of non-filers for the State general permit by providing a check for NPDES CGP permit coverage at the local level.

4.4 Construction Site Inspections and Enforcement

Example Permit Provision

4.4.1 The permittee must continue to implement procedures for inspecting public and private construction projects in accordance with the frequency specified in Table 4-1 below:

Table 4-1: Inspection Frequencies

Site	Inspection Frequency
a. All sites [*insert a size threshold that is considered large for the MS4 if large projects are common, e.g. 5 acres*] or larger in size	Inspection must occur within [*insert number of days/hours, e.g. 48 hours] of a [insert significant rain event size, e.g. ½ inch rain event] and no less than biweekly (every 2 weeks)*]
b. All sites one (1) acre or larger that discharge to a tributary listed by the state/tribe as an impaired water for sediment or turbidity under the CWA section 303(d)	
c. Other sites one (1) acre or more determined by the permittee or permitting authority to be a significant threat to water quality*	
d. All other construction sites with one (1) acre or more of soil disturbance not meeting the criteria specified in (A),(B), or (C) above	Inspection must occur at least monthly
e. Construction sites less than one (1) acre in size	Inspection must occur as needed based on the evaluation of the factors that are a threat to water quality*
*In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-stormwater discharges; past record of non-compliance by the operators of the construction site; and [*insert other factors relevant to particular MS4*].	

4.4.2 The permittee must adequately inspect all phases of construction.

a. Prior to Land Disturbance: Prior to allowing an operator to commence land disturbance, the permittee must perform an inspection to ensure all necessary erosion and sediment controls are in place.

b. During Active Construction: During active construction, the permittee is required to conduct inspections in accordance with the frequencies specified in Table 4-1 in Part 4.4.1.

c. Following Active Construction: At the conclusion of the project, the Permittee must inspect all projects to ensure that all graded areas have reached final stabilization and that all temporary control measures are removed (e.g., silt fence).

4.4.3 The permittee must have trained and qualified inspectors (See Part 4.5). The permittee must also continue to follow, and revise as necessary, written procedures outlining the inspection and enforcement procedures. Inspections of construction sites must, at a minimum:

a. Check for coverage under the [*insert name of applicable NPDES general construction permit*] by requesting a copy of any application or Notice of Intent (NOI) or other relevant application form during initial inspections.

b. Review the applicable [*insert name of local erosion and sediment control/stormwater plan*] and conduct a thorough site inspection to determine if control measures have been selected, installed, implemented, and maintained according to the plan.

c. Assess compliance with the permittee's ordinances and permits related to stormwater runoff, including the implementation and maintenance of designated minimum control measures.

d. Assess the appropriateness of planned control measures and their effectiveness.

e. Visually observe and record non-stormwater discharges, potential illicit connections, and potential discharge of pollutants in stormwater runoff.

f. Provide education and outreach on stormwater pollution prevention, as needed.

g. Provide a written or electronic inspection report generated from findings in the field

4.4.4 The permittee must track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required. Inspection findings must be documented and maintained for review by the permitting authority.

4.4.5 Based on site inspection findings, the permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance in accordance with the permittee's enforcement response plan required in Part 1.3. These follow-up and enforcement actions must be tracked and maintained for review by the permitting authority. [9]

[9] 2007 San Diego Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The permit requires inspections of construction sites based on a prioritized ranking of sites (see 40 CFR 122.26(d)(2)(iv)(D)(3) and 122.34(b)(4)(ii)(F)). Larger construction sites and sites that discharge to a sediment impaired waterbody are inspected more frequently than small sites. In addition to inspections at a regular interval, inspections are required within a certain timeframe after a rain event.

Inspections are required before land disturbance to ensure erosion and sediment controls are in place and a plan has been developed, during active construction, and after the site has been stabilized. The permit language also contains specific requirements on what the inspection must include (such as a comparison of control measures in the approved plan to measures installed in the field).

Without adequate implementation and maintenance, stormwater controls will not function as designed. In order to ensure proper implementation and maintenance by site operators, a rigorous inspection protocol is necessary. This protocol must include a written SOP for site inspections and enforcement to ensure inspections and enforcement actions are conducted in a consistent manner. The SOP must include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, slope of the site, proximity to receiving waters, the characteristics of soils, and the water quality status of the receiving water. This will allow inspection resources and staff time to be used most effectively. Documentation of inspections is critical to track noncompliance and enforcement. Regularly scheduled inspections, as well as post-storm event inspections, are necessary to be sure that regular maintenance occurs as well as repairs after storm events.

Recommendations for the Permit Writer

Selecting an appropriate inspection frequency is, by necessity, a case-by-case exercise. Inspection frequencies for one permittee will not necessarily be appropriate for other permittees. For example, appropriate inspection frequencies may vary among different permittees depending on such factors as topography and rainfall patterns, including whether the MS4 is located in a wet or arid region and/or has distinct wet and dry seasons. Appropriate inspection frequencies may also vary seasonally or geographically within a single MS4 based on seasonal variations in rainfall or snowfall, or differing topographical or geographic conditions in different parts of the MS4 area.

For individual MS4 permits, permit writers should consider seasonal rainfall patterns, the presence and location of impaired streams or sensitive habitats, soils, topography, and other MS4-specific factors. In addition, permit writers should review current inspection frequencies, as well as inspection and enforcement records.

The permit writer should also note that the permit language will need to be modified if the permittee was not previously required to develop written procedures for the inspection and enforcement conducted at construction sites.

4.5 MS4 Staff Training

Example Permit Provision

4.5.1 The permittee must ensure that all staff whose primary job duties are related to implementing the construction stormwater program, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. The training can be conducted by the permittee or outside training can be attended, however, this training must include, at a minimum:

a. Erosion and Sediment Control/Stormwater Inspectors:

1. Initial training, held within the first permit year, regarding proper control measure selection, installation, implementation, and maintenance, as well as administrative requirements such as inspection reporting/tracking and use of the permittee's enforcement responses; and
2. Annual refresher training for existing inspection staff to update them on preferred controls, regulation changes, permit updates, and policy or standards updates. Throughout the year, e-mails and/or memos must be sent out to update the inspectors as changes happen.

b. Other Construction Inspectors: Initial training must be held within the first permit year, on general stormwater issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance. Refresher training held at least once every two years.

c. Plan Reviewers:

1. Initial training, held within the first permit year, regarding control measure selection, design standards, and review procedures; and
2. Annual training regarding new control measures, innovative approaches, permit updates, regulation changes, and policy or standard updates.

d. Third-Party Inspectors and Plan Reviewers: If the permittee utilizes outside parties to conduct inspections and/or review plans, these outside staff must be trained per the requirements listed in Part 4.5.1.a (above).

Example Permit Requirement Rationale for the Fact Sheet

By setting up training for the permittee staff, the permittee can ensure that the erosion and sediment control requirements are understood and consistently applied since all staff will have been trained on the same information. The permit requires staff whose primary job duties are related to implementing the construction stormwater program to be trained. The training requirements vary by the type of staff. F or example, erosion and sediment control inspectors must be trained annually on a range of topics, while other construction inspectors (such as building inspectors) will receive more general training.

The permittee can conduct the training or the training can be provided by another entity (such as a State erosion and sediment control class). Ideally, the training should include classroom presentations, in-field training, and follow-up evaluations to determine whether the training was effective.

Also, the permittee should consider providing training to other in-field municipal staff so that problems associated with flooding and sedimentation from construction sites can be properly reported and addressed.

4.6 Construction Site Operator Education & Public Involvement

Example Permit Provision

4.6.1 Construction Operator Education. The permittee must develop and distribute educational materials to construction site operators as follows:

a. Each year, the permittee must either provide information on existing training opportunities or develop new training for construction operators on control measure selection, installation, implementation, and maintenance as well as overall program compliance.

b. The permittee must develop or utilize existing outreach tools (i.e. brochures, posters, website, plan notes, manuals etc.) aimed at educating construction operators on appropriate selection, installation, implementation, and maintenance of stormwater controls, as well as overall program compliance.

c. The permittee must make available appropriate outreach materials to all construction operators who will be disturbing land within the MS4 boundary. The permittees' contact information and website must be included in these materials.

d. The permittee must include information on appropriate selection, installation, implementation, and maintenance of controls, as well as overall program compliance, on the permittee's existing website.

4.6.2 Public Involvement.

a. The permittee must adopt and implement procedures for receipt and consideration of information submitted by the public regarding construction projects. This includes, but is not limited to, the public reporting mechanisms described in Part 3.6.

b. The permittee must hold public meetings for all public projects that have planned disturbance greater than or equal to an acre. [10]

[10] Eastern Washington MS4 Phase II Permit (Part 2 only) (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

Education of construction site operators regarding stormwater management and regulatory requirements is an essential part of controlling stormwater discharges from construction sites. Making brochures, guidance documents and trainings available will increase the knowledge of operators and compliance in the field and can help them choose the correct structural control and processes, correctly install the controls, and successfully implement control measures. The permit requires the permittee to provide appropriate outreach materials to construction site operators. These materials can be made available during the normal course of business (i.e. in BMP manuals, in plan notes, during meetings) or via brochures or websites. In addition, the permittee must either provide training or notify the operators of available training opportunities.

Public involvement requirements include the development of a hotline or other telephone number for the public to call regarding stormwater concerns at construction sites.

CHAPTER 5: POST-CONSTRUCTION OR PERMANENT/LONG-TERM STORMWATER CONTROL MEASURES

Introduction

Phase I MS4s are required to address new development and significant redevelopment in their SWMPs through controls to reduce pollutants in stormwater discharges after construction is completed. See 40 CFR 122.26(d)(2)(iv)(A)(2).

Included Concepts

- Post-construction stormwater management program
- Site performance standards
- Site plan review
- Long-term maintenance of post-construction stormwater control measures
- Watershed protection
- Tracking of post-construction stormwater control measures
- Inspections and enforcement
- Retrofit plan

The Phase II regulations require regulated small MS4 operators to develop, implement, and enforce a program to address stormwater discharges from new development and redevelopment sites that disturb greater than or equal to one acre to the MS4 (including projects that disturb less than one acre that are part of a larger common plan of development or sale). The regulations also require that the MS4 ensure that control measures are installed and implemented that prevent or minimize water quality impacts. See 40 CFR 122.34(b)(5)(i)

As part of these Phase II requirements, the MS4 must:

- Develop and implement approaches to addressing post-construction stormwater discharges that include a combination of structural and/or non-structural controls;
- Adopt adequate legal authority to enable the MS4 to address post-construction stormwater discharges from new development and redeveloped sites; and
- Ensure adequate long-term operation and maintenance of applicable post-construction control measures. See 40 CFR 122.34(b)(5)(ii).

As of April 2010, most MS4 permits only require permittees to adopt a post-construction program with enforceable requirements designed to reduce stormwater impacts from new development and redevelopment, without specifying a performance standard. To meet this requirement many MS4s have adopted criteria in ordinances or other legally enforceable mechanisms based on already promulgated flood-control based standards (i.e., focused only on discharge rates). However, performance standards can be a very useful and meaningful mechanism in the post-construction toolbox to ensure that water quality objectives are met.

The example permit provisions that follow present the current thinking on how to strengthen the effectiveness of the permittee's stormwater program by preventing the harmful effects of increased stormwater flows and pollutant loads from new development and redeveloped sites on receiving waterbodies. EPA recognizes that there are a wide variety of approaches that some states have already

taken to control discharges from new development and redeveloped sites, some of which are more stringent than the permit language recommended below. The language below includes components that EPA believes would provide focus and enforceability, and would bring about significant improvements in stormwater controls on site. However, the "maximum extent practicable" may be greater than is reflected in the example permit language below for some MS4s, and EPA encourages states, where possible, to go beyond these example provisions and to achieve even better watershed planning and water quality outcomes. For these reasons, this chapter presents the minimum permit provisions EPA currently recommends to be included in permits in order for permittees to reduce their discharges to the maximum extent practicable as well as the optional, more stringent, requirements.

5.1 Post-Construction Stormwater Management Program

Example Permit Provision

5.1.1 The permittee must continue to implement a program to control stormwater discharges from new development and redeveloped sites that disturb at least one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale) that discharge into an MS4 [*or insert smaller alternative size*]. The program must apply to private and public development sites, including roads.

5.1.2 The program must require that controls are in place that will infiltrate, evapotranspire, or harvest and use stormwater from the site to meet the performance standards in Part 5.2 to protect water quality.

5.1.3 Written procedures for implementing this program, including the components described in Parts 5.2 – 5.8, must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

The stormwater regulations require that an MS4 develop and implement a program to address post-construction discharges from new development and redeveloped sites, and ensure the long-term operation and maintenance of these controls (see Part 5.4 for the maintenance requirements). (See 40 CFR 122.34(b)(5)). The permit requires the use of specific stormwater controls, i.e., those that infiltrate, evapotranspire, or harvest and use stormwater, with the aim of maintaining or restoring the pre-development stormwater runoff conditions at the site.

Many traditional stormwater management practices, and the permit language that drives them, fail to address the hydrologic modifications that increase the quantity of stormwater discharges, and cause excessive erosion and stream channel degradation. Frequently the volume, duration, and velocity of stormwater discharges cause degradation to aquatic systems. Protecting and restoring the physical, chemical and biological integrity of receiving waters must be a central issue in stormwater permits. The recent report of the National Research Council (*Urban Stormwater Management in the United States*, National Academies Press, 2008, www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf) recommends that the NPDES stormwater

program examine the impacts of stormwater flow, treat flow as a surrogate for other pollutants, and includes the necessary control requirements in stormwater permits. Specifically the report recommends that the volume retention practices of infiltration, evapotranspiration and rainwater harvesting be used as primary stormwater management mechanisms. For this reason, EPA recommends use of a permit condition that is based on maintaining or restoring predevelopment hydrology although other forms of this permit condition maybe appropriate as well.

Additional information on the development of a post-construction program for Phase II permittees can be found in the Center for Watershed Protection's *Managing Stormwater In Your Community: A Guide for Building an Effective Post-Construction Program* (available at www.cwp.org/postconstruction). Also, EPA's green infrastructure website includes information on post-construction controls and programs (see www.epa.gov/greeninfrastructure).

5.2 Site Performance Standards

Example Permit Provision

5.2.1 The permittee must establish, implement and enforce a requirement that owners or operators of new development and redeveloped sites discharging to the MS4, which disturb greater than or equal to one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale), design, install, implement, and maintain stormwater control measures that infiltrate, evapotranspire, harvest, and use stormwater discharges.

5.2.2 Within [*insert deadline, e.g., 12 months, 24 months, etc.*] the permittee must require that stormwater discharges from such new development and redevelopment sites be managed such that post-development hydrology does not exceed the pre-development hydrology at the site, in accordance with the performance standard set forth in this paragraph. The SWMP must describe the site design strategies, control measures, and other practices deemed necessary by the permittee to maintain or improve pre-development hydrology.[11] [*Insert a new development performance standard, such as one or a combination of the following:*

Basis for Performance Standard	***Description***	***Performance Standard***
Rainfall	*Minimum storm volume to be retained on site.*	*Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from [insert standards, such as "the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation"]. Discharge volume reduction can be achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration and/or evapotranspiration and any combination of the aforementioned practices. This first one inch of rainfall*

[11] *Big Darby Creek Watershed CGP, Part III.G.2.d. (web.epa.ohio.gov/dsw/permits/DarbyStormWater_Final_GP_sep06.pdf)*

		must be 100% managed with no discharge to surface waters, except when the permittee chooses to implement the conditions in Part 5.2.5.d below.[12]
Rainfall	*Minimum storm size to be retained on site.*	*Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to [insert standards, such as "the 95th percentile rainfall event"]. This objective must be accomplished by the use of practices that infiltrate, evapotranspire and/or harvest and reuse rainwater. The 95th percentile rainfall event is the event whose precipitation total is greater than or equal to 95 percent of all storm events over a given period of record.*[13]
Recharge/Runoff	*Hydrologic analysis.*	*Design, construct, and maintain stormwater management practices that preserve the pre-development runoff conditions following construction. The post-construction rate, volume, duration and temperature of discharges must not exceed the pre-development rates and the pre-development hydrograph for 1, 2, 10, 25, 50 and 100 year storms must be replicated through site design and other appropriate practices. These goals must be accomplished through the use of infiltration, evapotranspiration, and/or rainwater harvesting and reuse practices. Defensible and consistent hydrological assessments and modeling methods must be used and documented.* [14]
Recharge	*Groundwater recharge requirement.*	*Any "major development" project, which is one that disturbs [insert standards, such as at least one (1) acre of land or creates at least 0.25 acres of new or additional impervious surface], must comply with one of the following two groundwater recharge requirements:* • *Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or* • *Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater discharges volume from pre-construction to post-construction for the two-year storm is infiltrated.*[15]
Impervious Cover	*Limiting total impermeable surface (or effective impermeable surface)*	*Minimize total impervious cover resulting from new development and redevelopment to [insert standards, such as <10% of disturbed land cover and/or limit total amount of effective impervious surface to no more than 5% of the landscape].*

[12] *West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*
[13] *Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)*
[14] *Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)*
[15] *New Jersey Stormwater Management Rules, N.J.A.C. 7:8 (www.nj.gov/dep/rules/adoptions/2004_0202_njpdes.pdf)*

5.2.3 Incentives for Redeveloped Sites. When considered at the watershed scale, certain types of developed sites can either reduce existing impervious surfaces, or at least create less 'accessory' impervious surfaces. The Permittee may develop a program to allow adjustments to the performance standard for new development or redevelopment sites that qualify. A reduction of [*insert the amount of stormwater the Permittee can reduce for utilizing redevelopment principles, e.g. 0.2 inches from the one inch runoff reduction standard*] may be applied to any of the following types of development. Reductions are additive up to a maximum reduction of [*insert amount, such as 0.75 inches*] for a project that meets four or more criteria. The permittee may choose to be more restrictive and allow a reduction of less than [*insert amount, such as 0.75 inches*] if they choose. In no case will the reduction be greater than [*insert amount, such as 0.75 inches*].

1. Redeveloped sites
2. Brownfield redeveloped site
3. High density (>7 units per acre)
4. Vertical Density, (Floor to Area Ratio (FAR) of 2 or >18 units per acre)
5. Mixed use and Transit Oriented Development (within ½ mile of transit)[16]

5.2.4 Additional Requirements and Exceptions: The permittee must implement the following additional requirements where applicable:

a. A site that is a potential hot spot with the reasonable potential for contaminating underground sources of drinking water must provide treatment for associated pollutants (e.g., petroleum hydrocarbons at a vehicle fueling facility).

b. A site that discharges or proposes to discharge to any surface water or ground water that is used as a source of drinking water must comply with all applicable requirements relating to source water protection and must not cause an exceedance of drinking water standards.[17]

c. Sites may not infiltrate stormwater in areas of soil contamination.

d. For projects that cannot meet 100% of the performance standard in Part 5.2.2 on site, two alternatives are available: off-site mitigation and payment in lieu. If these alternatives are chosen, then the permittee must develop and fairly apply criteria for determining the circumstances under which these alternatives will be available and establish reasonable schedules for mitigation and require payment in lieu of prior to project inception. A determination that standards cannot be met on site must include multiple criteria that would rule out fully meeting the performance standard in Part 5.2.2, such as: too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils; soil instability as documented by a thorough geotechnical

[16] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.3) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*
[17] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.2) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

analysis; a site use that is inconsistent with capture and reuse of stormwater; or too much shade or other physical conditions that preclude adequate use of plants. Sites must still maximize stormwater retention on-site, before applying the remaining stormwater to one of the alternatives. In instances where alternatives are chosen, technical justification as to the infeasibility of on site management is required to be documented.[18]

Example Permit Requirement Rationale for the Fact Sheet

Developed land changes the hydrology of sites, leading to higher stormwater discharge volumes and higher pollutant loads. The purpose of this standard is to maintain or restore stable hydrology in receiving waters thereby protecting water quality by having post-construction hydrology mimic the natural hydrology of the area.

A simpler, but reasonably approximate 'mimicking the natural hydrograph' approach can typically be accomplished by retaining (as opposed to detaining stormwater for later discharge) on a developed site the volume of water that was retained prior to development, through the mechanisms of infiltration, evapotranspiration, and capture and use. By significantly reducing the volume of stormwater discharges, these mechanisms significantly reduce the discharge of pollutants in stormwater, making discharge volumes the ideal all-around focus and metric for stormwater management. These provisions must be clear about the retention requirement, e.g., an underdrained rain garden likely functions more as a detention and filtration system than an infiltration system.

In Part 5.2.3, the five types of development which qualify for incentives are redevelopment, brownfield redevelopment, high density, vertical density, and mixed use with transit oriented development. Redeveloping already degraded sites can reduce regional land consumption and minimize new land disturbance. Minimizing land disturbance and impervious cover is critical to maintaining watershed health. In addition to water quality benefits, cleaning up and reinvesting in brownfield properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment. The effect of low-density urbanization on watersheds and the hydrologic cycle is substantial. High-density development, including vertical density, slows land consumption rates and accommodates more land uses on a smaller footprint. Finally, mixing land uses and promoting transit-oriented development can directly reduce runoff since mixed-use developments have the potential to use surface parking lots and transportation infrastructure more efficiently, requiring less pavement.[19]

In Part 5.2.4.d, the permittee must establish clear and stringent criteria for the conditions under which payment in lieu and off-site mitigation could be used. These criteria must be related to physical constraints such as a combination of soils which limit infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of stormwater. Further, appropriate schedules for

[18] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.4) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

[19] Adapted from the WV Phase II MS4 Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx)

payment and implementation of mitigation measures must be established to ensure stormwater impacts are addressed in a timely manner.

Recommendations for Permit Writer

Many communities have adopted criteria based on already promulgated flood-control based standards (i.e., focused only on discharge rates). This example permit language instead promotes the concept that effective standards should be based on the objective of maintaining or restoring stable hydrology to protect the quality of receiving waters by having post-construction hydrology mimic the natural hydrology of the area. The permit language provides a number of example standards that can be used to achieve this objective.

Performance standards should take into account the wide variability in hydrologic conditions in different areas. Ideally, standards should reflect the local naturally-occurring hydrology with respect to runoff, infiltration, evapotranspiration, and storage – that is, the water balance that would be present in the absence of development. Key parameters, such as rainfall patterns, soil characteristics, and topography, can be used to establish likely 'natural' hydrology. Where maintaining or reestablishing such hydrologic conditions is infeasible, off-site mitigation, payment-in-lieu, or fee programs may be used. Based on current (2010) information, EPA recommends that permits allow for a combination of techniques that utilize infiltration, capture and use, and evapotranspiration as appropriate, rather than relying only on infiltration or some other technique alone to meet performance standards.

The permit writer could include a performance standard that stipulates that predevelopment hydrographs match post-development hydrographs. In order for this type of performance standard to be effective, the permit writer should make sure that the permit clearly spells out all variables of the hydrograph (volume, rate, duration, frequency) to be matched, and not just the discharge rate. Many current pre-post hydrology standards focus only on discharge rate, which is primarily a flood control approach. In addition, a pre-development condition should also be defined, and that condition should be one that is reasonably 'natural', rather than simply the conditions (perhaps already fairly impervious) that existed immediately prior to the current developed site. A calculator tool based on key hydrologic parameters (soil, rainfall, slope, and vegetation) or an on-site rainfall retention standard that is appropriate for that area can help the permittee determine what constitutes pre-development hydrology and the means by which it may be matched.

As contemplated in the example permit provisions, permit writers may want to consider the difference between new development and redevelopment sites, as well as differences among some types of developed sites, in establishing performance standards. From the standpoint of imperviousness at a watershed scale, redeveloped sites are usually more desirable than new development sites, which replace relatively naturally functioning green spaces with impervious surfaces such as roads, and parking lots. Certain types of development generate less impervious surfaces than others. For example, typically, there is little or no increase in net stormwater discharges when redeveloping underused properties such as vacant properties, brownfield sites, or greyfield sites, since new impervious cover replaces existing impervious cover. The net discharge increase from already developed properties would likely be zero since the site was already predominately impervious cover. In many cases, redeveloped sites break up or remove some portion of the impervious cover, converting it to pervious cover and allowing for some stormwater infiltration. Redevelopment sites can produce a net improvement in regional water quality by decreasing total impervious area and its

associated stormwater discharges. Redeveloped sites can also reduce regional land consumption. By building on underused, already degraded land, the pressure to convert previously undeveloped land is reduced. Therefore differential standards for new development and redeveloped sites, as well as for different types of developed sites, may be reasonable. However, they should be crafted to minimize creation of imperviousness at the watershed scale, and still include some reasonable level of stormwater management at the site scale.

Redevelopment is the act of improving by renewing or restoring any developed property that results in the land disturbance of one acre or greater, and that has one of the following characteristics:

- Land that currently has an existing structure, such as buildings or houses, or
- Land that is currently covered with an impervious surface, such as a parking lot or roof, or
- Land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

Infiltration may not be appropriate in all cases. For example, a site that is a potential hot spot with the reasonable potential for significant pollutant loading(s) may not be appropriate for stormwater infiltration. Hot spots may include commercial, industrial, institutional, municipal, or transportation related operations that may produce higher levels of stormwater pollutants, and/or present a higher level or risk for spills, leaks, or illicit discharges such as: gas stations, petroleum wholesalers, vehicle maintenance and repair, auto recyclers, recycling centers and scrap yards, landfills, solid waste facilities, wastewater treatment plants, airports, railroad stations and associated maintenance facilities, and highway maintenance facilities.

In addition, the permit writer may want to consider what type of flexibility to afford sites where the owner/operator is not able to meet the performance standard on site. For instance, if a site is constrained by size or previous impervious surfaces, such that the use of control measures that infiltrate stormwater is severely limited, the permit could allow alternatives for meeting the performance standard in other ways such as payment in lieu and off-site mitigation within the same watershed.

Off-site mitigation and payment in lieu programs are options that can be used in these instances. Off-site mitigation generally means that control measures may be implemented at another location, in the same sewershed/watershed as the original project, and as approved by the regulatory agency. Payment in lieu programs generally mean that the developer pays a fee to the permittee which will then be applied to a stormwater control project, in lieu of installing the required control measures.

If the permit writer chooses to include an off-site mitigation or payment in lieu program in the permit, the permit writer could specify that the programs meet several criteria, for example, those described in the 2009 West Virginia Phase II General Permit Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx):

1. The permittee must establish clear and stringent criteria for the conditions under which these options are available that must be related to real physical constraints such as a combination of soils limiting infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of

stormwater. While one or two of these characteristics should not be adequate to qualify for the alternative, the combination of multiple constraints could;

2. A minimal requirement for at least [*0.4 inch*] of stormwater managed on-site;

3. A [*1:1.5 ratio*] of the amount of requisite stormwater not managed on site to the amount of stormwater required to be mitigated at another site, or for which in-lieu payments must be made;

4. If demonstrated to the permittee that it is completely infeasible to manage the remainder [*0.4 inches*], then the ratio for this unmanaged portion is [*1:2*].

5. The necessary tracking systems for both types of programs, including the necessary inventory of public and retrofit projects for off-site mitigation; and,

6. The establishment of a credible valuation structure for payment in lieu, i.e., what is the actual cost for the permittee to provide retrofits for the necessary amount of stormwater, not just a token payment. The purpose of these provisions is to disincentivize the use of alternatives unless really needed, but also to provide a financial foundation for implementation of public stormwater management projects, including retrofits where those needs have been identified.

Additional justification for the development types which qualify for these incentives can be seen in the West Virginia Phase II MS4 Permit Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx).

5.3 Site Plan Review

Example Permit Provision

5.3.1 To ensure that all applicable new development and redeveloped sites conform to the performance standards required in Part 5.2, the permittee must continue to implement project review, approval, and enforcement procedures that include:

a. Procedures for the site plan review and approval process(es) that include inter-departmental consultations, as needed, and a required re-approval process when changes to an approved plan are desired; and

b. A requirement for submittal of 'as-built' certifications within 90 days of completion of a project.

5.3.2 The permittee must conduct site plan reviews, using the procedures described in Part 5.3.1, of all new development and redeveloped sites which will disturb greater than or equal to one acre [*or a smaller threshold as set by the permitting authority*] and discharge to the MS4 (including sites that disturb less than one acre that are part of a larger common plan of development or sale). The site plan review must specifically address how the project applicant meets the performance standards in Part 5.2 and how the project will ensure long-term maintenance as required in Part 5.4.

Example Permit Requirement Rationale for the Fact Sheet

Specific standards are a critical component of a stormwater management program. However, even the best requirements need to be supported by a review program to ensure that the standards are met. The example permit provision would require permittees to fully implement a comprehensive site plan review and approval program. To meet this requirement, the permittee must have the authority to withhold approvals when standards are not met.

Recommendations for the Permit Writer

The permit writer may want to consider adding a requirement for a pre-application concept plan meeting to occur (in addition to the requirement for the project applicant to submit a site plan for review). During this meeting the project land owner or developer, the project design engineer, and municipal planning staff could discuss the conceptual designs that would be used to ensure that they meet the performance standards. This meeting would ensure that stormwater and performance standards are addressed early in the development process. However, if this pre-application concept plan meeting is not consistent with local planning procedures, the permit writer could consider omitting this requirement.

5.4 Long-Term Maintenance of Post-Construction Stormwater Control Measures

Example Permit Provision

5.4.1 All structural stormwater control measures installed and implemented to meet the performance standards of Part 5.2 must be maintained in perpetuity. The permittee must ensure the long-term maintenance of structural stormwater control measures installed according to this Part through one, or both, of the following approaches:

a. Maintenance performed by the Permittee. See part 6.4.

b. Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance agreement. The permittee must require the owner or operator of any new development or redeveloped site subject to the performance standards in Part 5.2 to develop and implement a maintenance agreement addressing maintenance requirements for any structural control measures installed on site to meet the performance standards. The agreement must allow the permittee, or its designee, to conduct inspections of the structural stormwater control measures and also account for transfer of responsibility in leases and/or deeds. The agreement must also allow the permittee, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from the property owner/operator when the owner/operator has not performed the necessary maintenance within thirty (30) days of notification by the permittee or its designee.

5.4.2 Verification of maintenance responsibilities. The permittee must require that property owners or operators of any new development or redeveloped site subject to the performance standards in Part 5.2 provide verification of maintenance for the approved structural stormwater control measures used to comply with the performance standards. Verification must include one or more of the following as applicable:

a. The owner/operator's signed statement accepting responsibility for maintenance with a provision for transferring maintenance responsibility if the property is legally transferred to another party; and/or

b. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or

c. Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control stormwater management practices; and/or

d. Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control stormwater management practices.

Example Permit Requirement Rationale for the Fact Sheet

Appropriate operation and maintenance are critical aspects to the function of any suite of controls. In many cases, controls may be located on private property, and it is necessary to establish some provision to assure responsibility and accountability for the operation and maintenance of these controls.

The permittee must ensure maintenance of all structural stormwater control measures. In this Guide, structural controls also include many green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales.

Recommendations for the Permit Writer

Most non-traditional MS4 permittees will probably not have the legal authority to recoup costs where the owner/operator has not completed necessary maintenance. Permit writers may want to be more specific in this requirement to include other options for non-traditional MS4 permittees.

5.5 Watershed Protection

Example Permit Provision

5.5.1 When the Permittee revises its General Plan (or equivalent) or other relevant plans (e.g. Transportation Master, or Community Plan) they must include effective water

quality and watershed protection elements that require implementation of consistent water quality protection measures for new development and redeveloped sites within [*insert deadline*]. Examples of water quality and watershed protection elements to be considered include the following: [*insert principles and/or policies which are appropriate for the watershed such as,*

- Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by minimizing the creation, extension and widening of parking lots, roads and associated development.
- Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.
- Implement management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.
- Prevent disturbances of natural waterbodies and natural drainage systems caused by development, including roads, highways, and bridges.
- Avoid development in areas that are particularly susceptible to erosion and sediment loss.
- Implement standards to protect trees, and other vegetation with important evapotranspirative qualities.
- Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.
- Implement water conservation policies that will reduce both stormwater and non- stormwater discharges via storm sewer systems.[20]
- Implement policies that encourage stormwater practices close to the source of the runoff rather than downstream and lower in the watershed.]

Example Permit Requirement Rationale for the Fact Sheet

Imperviousness has been shown to correlate with water quality impacts. In order to minimize water quality impacts, the permittee must examine their planning principles to manage the creation of impervious surfaces at the watershed level, such as reducing the footprint of streets and parking lots. Also, ecologically sensitive areas can protect water quality by acting both as filters that reduce pollutants in stormwater discharges and as sponges to reduce the impact on the ecosystem's hydrology. Thermal pollution is also a concern that can impact biota in waterways. Stormwater discharges from impervious surfaces are often characterized by higher temperatures than natural, pervious surfaces. Reducing the chances of further increasing this temperature by preserving, protecting, and restoring natural features that provide shading for the waterway can further help reduce thermal pollution. Whenever possible natural waterways

[20] *West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

must be protected and not disturbed by stormwater from developed sites. For example, areas that have a high potential for erosion must be avoided for development when possible. Protecting vegetation, native soils, and conserving water can also help ensure the hydrologic qualities of the site remain intact.

Consideration of stormwater impacts from development is critical during the planning phases of development. This not only includes planning on the site-level, but also with respect to discharges from the MS4 on the watershed level. To the extent possible, stormwater management must be an integral part of higher level planning documents that determine where and how development that will result in stormwater discharges to the MS4 should occur since these decisions affect water quality. Using land efficiently can result in better stormwater management by putting development where it is most appropriate. For example, by directing and concentrating new development in areas targeted for growth, communities can reduce or remove development pressure on undeveloped parcels and protect sensitive natural lands and recharge areas. Another strategy is redeveloping already degraded sites such as abandoned shopping centers or underutilized parking lots. In this case, the net increase in discharges from developed sites would likely be zero, and it would likely decrease, depending on the on-site infiltration practices used. Also, by allowing or encouraging denser development, less land is converted overall, and less total impervious area created.

Recommendations for the Permit Writer

Examining stormwater on a watershed basis and including watershed principles is an important part of protecting waterways in a holistic manner. Climate change may increase the size and frequency of storms in some area of the nation. Including watershed-type assessments and considerations as Permit Requirements will help the permittee better focus their efforts to ensure the best water protection outcomes for existing conditions and those anticipated future conditions. Therefore, permit writers should consider including watershed protection principles. Newer programs may not be ready for permit writers to include the exact example permit provision provided. If possible, permit writers should be as specific as possible for the needs of the watershed where the MS4 permittee is located. Permittees should be careful when installing new stormwater BMPs to ensure that there are not any negative, unintended consequences.

5.6 Tracking of Post-Construction Stormwater Control Measures

Example Permit Provision

5.6.1 Inventory of Post-Construction Stormwater Control Measures. The permittee must continue to maintain an inventory of all post-construction structural stormwater control measures installed and implemented at new development and redeveloped sites, including both public and private sector sites located within the permit area. The inventory must be searchable by property location (either on paper or electronic). New entries to the inventory must be made during the site plan review and approval process in Part 5.3.1.

5.6.2 Tracking Information. Each entry to the inventory must include basic information on each project, such as project name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries must include the following for each project:

a. Short description of each stormwater control measure (type, number, design or performance specifications);

b. Latitude and longitude coordinates of each stormwater control measure;

c. Short description of maintenance requirements (frequency of required maintenance and inspections); and

d. Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).

Based on inspections conducted under Part 5.7, the permittee must update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site. This inventory must be maintained and available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Creating an inventory of post-construction structural stormwater control measures, including tracking of specific information, will first enable permittees to know what control measures they are responsible for. Without this information the permittee will not be protecting water quality to their full potential since inspections, maintenance, and follow-up changes cannot be performed. Tracking information such as the latitude/longitude, maintenance and inspection requirements and follow-up will allow the permittee to be able to better allocate their resources for those activities that are immediately necessary. Although not required, including photographs will help the permittee assess how the control measure has changed since it was first created and will likely aid in determining proper maintenance and/or retrofitting opportunities if the measure is no longer providing the water quality benefits it was originally designed.

Recommendations for the Permit Writer

Permit writers may wish to specifically define the types of structural controls that must be included in the inventory. For example, rain barrels may be considered a structural control, but the MS4 likely does not need latitude and longitude coordinates of the rain barrels.

5.7 Inspections and Enforcement

Example Permit Provision

5.7.1 Inspection Frequency. To ensure that all stormwater control measures are operating correctly and are being maintained as required consistent with its applicable maintenance agreement, the permittee must conduct inspections of each project site covered under Part 5.2 performance standards, [*insert inspection frequency, e.g., at least one time during the permit term, 20% of sites per year, etc.*]. The inspections must be in accordance with those specified in the [*insert State manual that describes the maintenance of control measures*]. A description of inspection procedures must be included in the SWMP document.

5.7.2 Post-Construction Inspection. Within [*insert deadline, e.g., 1 week, 2 weeks, etc.*] of completion of construction of any project required to meet the Section 5.2 performance standards, the permittee must conduct a post-construction inspection to verify that the permittee's performance standards have been met. The permittee must include in its SWMP a procedure for being notified by construction operators/owners of their completion of active construction so that the post-construction inspection may be conducted.

5.7.3 Inspection Reports. The permittee must document its inspection findings in an inspection report. Each inspection report must include:

a. Inspection date;

b. Name and signature of inspector;

c. Project location (street address, latitude/longitude, etc.) and inventory reference number (from inventory established in Section 5.6.1)

d. Current ownership information (for example, name, address, phone number, fax, and email)

e. A description of the condition of the structural stormwater control measure including the quality of: vegetation and soils; inlet and outlet channels and structures; embankments, slopes, and safety benches; catch basins; spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures;

f. Photographic documentation of all critical structural stormwater control measure components; and

g. Specific maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and reinspection dates.

The permittee must document and maintain records of inspection findings and enforcement actions and make them available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Inspection of post-construction control measures is key to ensuring the protection of water quality. If control measures are not inspected and maintained they could become sources of pollution rather than reducing pollution. By including detailed information in the inspection report, the permittee can better determine if maintenance is required and the permittee can have a snapshot of sorts to know the status of their control measures to prioritize funding.

Recommendations for the Permit Writer

Permit writers should clearly specify the requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as installing them in the first place. By having specific requirements, permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning. The permit writer may also want to add a prioritization scheme to the requirement to help the permittee determine what maintenance activities are priorities for protecting water quality and which ones are minor changes.

5.8 Retrofit Plan

Example Permit Provision

5.8.1 The permittee must develop a plan to retrofit existing developed sites that are impacting water quality. The retrofit plan must be developed within [*insert deadline, such as within two years of permit issuance*] and must emphasize controls that infiltrate, evapotranspire, or harvest and use stormwater discharges. The plan must include[21]:

a. An inventory of potential retrofit locations, which considers, at a minimum:

- Locations that contribute pollutants of concern to an impaired waterbody
- Locations that contribute to receiving waters that are significantly eroded
- Locations that are tributary to a sensitive ecosystem or protected area
- Locations that are tributary to areas prone to flooding

[21] Orange County Municipal Stormwater Permit (Section F.3.d) (www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.shtml)

b. An evaluation and ranking of the inventoried locations to prioritize retrofitting which includes, at a minimum:
   - Feasibility
   - Cost effectiveness
   - Pollutant removal effectiveness
   - Impervious area potentially treated
   - Maintenance requirements
   - Landowner cooperation
   - Neighborhood acceptance
   - Aesthetic qualities, and
   - Efficacy at addressing concern.

Example Permit Requirement Rationale for the Fact Sheet

It is clear that we cannot protect the nation's waters without also addressing degradation caused by stormwater discharges from existing developed sites. For that reason stormwater programs must include substantive retrofit provisions.

It is possible and reasonable to significantly improve water quality in many urban receiving waters. This requires more than just a new development and redeveloped sites program, however, which at best can only hold the line. To actually improve the quality of receiving waters it is necessary to mitigate discharges from existing developed sites, which generally means implementation of measures to bring about the retrofit the stormwater control measures at existing sites to retain most stormwater on site.

In addition, research indicates that most streambank restoration projects that actively stabilize eroding channels should not be implemented until after hydrologic retrofits have been completed that restore the hydrologic regime not concurrently with the implementation of the retrofits.

Municipal projects, such as traffic calming sites could also include stormwater retrofit components, such as curb bump outs that include bioretention features, rain gardens, and curb cuts.

Information on retrofit options and the development of a retrofit plan can be found in the Center for Watershed Protection's guidance on Urban Stormwater Retrofit Practices (available at www.cwp.org as Manual No. 3 under the Urban Subwatershed Restoration Manual Series).

Recommendations for the Permit Writer

Permittees may need a permit term or two to adequately develop and implement a retrofit plan. Some permittees may not be ready to have retrofit plans as part of their requirements. It is up to the permit writer to make this determination based on the specific information they have available on current programs. A retrofit plan should assess the areas where retrofitting is appropriate and will result in increased water quality protection and restoration. The permit writer should determine

the appropriate timeframe and language for a retrofit plan. For example, if the permittee was already required to develop a retrofit plan in a previous permit term the permit may specify a schedule for implementation rather than development.

CHAPTER 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

Introduction

Federal stormwater regulations (see 40 CFR 122.34(b)(6) and 40 CFR 122.26(d)(2)(iv)(A)) require the operator of a regulated MS4 community to develop a program to:

- Prevent or reduce the amount of stormwater pollution generated by municipal operations and conveyed into receiving waters.
- Train employees on how to incorporate pollution prevention/good housekeeping techniques into municipal operations.
- Identify appropriate control measures and measurable goals for preventing or reducing the amount of stormwater pollution generated by municipal operations.

Included Concepts

- ► Municipal facility and control inventory
- ► Facility assessment
- ► Development of facility-specific stormwater management SOPs and Implementation of facility stormwater controls
- ► Storm sewer system maintenance activities
- ► Flood management
- ► Pesticide, herbicide, and fertilizer application and management
- ► Training and education
- ► Contractor requirements and oversight

The first step for the permittee is to evaluate and assess the areas and municipal facilities that it controls in order to determine which activities may currently have a negative impact on water quality and to find solutions for these activities. The simplest solution is to limit the number of activities that are conducted outside and exposed to stormwater.

Storm sewer systems need maintenance to ensure that structures within the storm sewer that are meant to reduce pollutants do not become sources of pollution. Regularly maintaining catch basins and cleaning storm sewer pipes prevent the accumulation of pollutants that are later released during rain events as well as blockages, backups, and flooding. Most permittees have an existing program to maintain the storm sewer infrastructure. EPA notes, however, that some of these programs have tended to focus on flood avoidance and complaint response rather than reducing water quality impacts from stormwater discharges.

The MS4 permit must require that the system be maintained to prevent the discharge of pollutants into receiving waters. System mapping and a schedule of regular maintenance are key to a successful pollution prevention program. EPA recommends establishing a tiered maintenance schedule for the entire storm sewer system area, with the highest priority areas being maintained at the greatest frequency. Priorities should be driven by water quality concerns and can be based on the land use within the MS4 area, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. It is also advisable to use spill and illicit discharge data to track areas that may require immediate sewer infrastructure maintenance. It is also important for material that is collected to be disposed of in a responsible manner.

The procedures for storm sewer system operation and maintenance must be documented in the permittee's SOPs or similar type of documents, which are part of the permittee's SWMP. Employee training to carry out these pollution prevention measures is a required component of the program. The pollution prevention/good housekeeping/maintenance activities should be documented and, where possible, quantified (e.g., number and location of inspections and clean-outs, type and quantity of materials removed). Having permittees characterize the quantity, location, and composition of pollutants removed from catch basins can provide useful data that can later be used to assess the program's overall effectiveness, identify illicit discharges, and help the permittee better prioritize implementation activities in the future.

Specific pollution prevention requirements related to pollutant-generating activities such as landscaping techniques (including the application of pesticides, herbicides, and fertilizer) and operating and maintaining public streets, should also be included in the permit where applicable. For example, typical pollutants associated with street repair and maintenance include heavy metals, chlorides, hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylene), concrete dust, sand, deicers, sediment, and trash. The permitting authority should consider requiring alternative landscaping practices such as integrated pest management (IPM), xeriscaping, or mechanical (non-chemical) removal of unwanted plants. Other landscaping controls, such as mulch management, chemical storage, reduction of soil compaction, and erosion control, should also be considered. Training and educating municipal and contracted staff is also important to ensure that everyone is knowledgeable and proficient in the newest and most effective approaches to minimizing pollutant discharges from municipal facilities and activities.

Additionally, permits should require that water quality be considered when designing flood management projects, and that existing structural flood control devices are evaluated to determine if retrofitting the device to remove/reduce pollutants from stormwater is necessary and practicable.

6.1 Municipal Facility and Control Inventory

Example Permit Provision

6.1.1 Development of a Municipal Facility and Stormwater Control Inventory – The permittee must continue to update and maintain an inventory of municipally-owned or operated facilities and stormwater controls, including but not limited to the following:

- Composting facilities
- Equipment storage and maintenance facilities
- Fuel farms
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Landscape maintenance on municipal property
- Materials storage yards

- Pesticide storage facilities
- Public buildings, including schools, libraries, police stations, fire stations, municipal buildings, and similar buildings
- Public parking lots
- Public golf courses
- Public swimming pools
- Public works yards
- Recycling facilities
- Salt storage facilities
- Solid waste handling and transfer facilities
- Street repair and maintenance sites
- Vehicle storage and maintenance yards
- Municipally-owned and/or maintained structural stormwater controls

6.1.2 Documentation– The list of municipally-owned or operated facilities and stormwater controls must be maintained and available for review by the permitting authority.

6.1.3 Mapping – On a map of the area covered by the MS4 permit, the permittee must identify where the municipally-owned or operated facilities and stormwater controls are located. The map must identify the stormwater outfalls corresponding to each of the facilities as well as the receiving waters to which these facilities discharge. The permittee must also identify the manager of each facility and their contact information. The map must be maintained and updated regularly and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Municipally-owned or operated facilities serve as hubs of activity for a variety of municipal staff from many different departments. Some municipalities will have one property at which all activities take place (e.g., the municipal maintenance yard), whereas others will have several specialized facilities such as those listed above. A comprehensive list and map of such facilities will help staff responsible for stormwater compliance build a better awareness of their locations within the MS4 service area and their potential to contribute stormwater pollutants. The facility inventory will also serve as a basis for setting up periodic facility assessments (see Part 6.2) and developing, where necessary, facility stormwater pollution prevention plans (see Part 6.3).

Recommendations for the Permit Writer

Permit writers should tailor the facilities listed in the assessment as best they can to include the facilities most likely to be owned or operated by the permittee. It is highly likely that some of the facilities listed in the Permit Requirement would not apply to most non-traditional and/or non-municipal MS4s.

6.2 Facility Assessment

Permit Requirement

6.2.1 Municipally-owned or operated facility assessment:

a. Comprehensive Assessment of Pollutant Discharge Potential –The permittee must review, reassess, and update the comprehensive assessment of all municipally-owned or operated facilities identified in Part 6.1 [*insert frequency, e.g., annually*] for their potential to discharge in stormwater the following typical urban pollutants: sediment, nutrients, metals, hydrocarbons (e.g., benzene, toluene, ethylbenzene and xylene), pesticides, chlorides, and trash. Other pollutants may be associated with, but not generated directly from, the municipally-owned or operated facilities, such as bacteria, chlorine, organic matter, etc. Therefore, the permittee must determine additional pollutants associated with its facilities that could be found in stormwater discharges. A description of the assessment process must be included in the SWMP document.

b. Identification of "High Priority" Facilities – Based on the Part 6.2.1.a comprehensive assessment, the permittee must identify as "high-priority" those facilities that have a high potential to generate stormwater pollutants. Among the factors that must be considered in giving a facility a high priority ranking is the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (e.g., changing automotive fluids, vehicle washing), proximity to waterbodies, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include the permittee's maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.

c. Documentation of Comprehensive Assessment Results – The permittee must document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the comprehensive assessment. The documentation must include the results of the permittee's initial assessment, any identified deficiencies and corrective actions taken, and a list of the "high priority" facilities identified per Part 6.2.1.b.

Example Permit Requirement Rationale for the Fact Sheet

The initial ("first time") comprehensive assessment is necessary to identify which of the municipality's facilities are most likely to contribute stormwater pollutants and which are in need of stormwater controls. The assessments will involve a detailed site inspection that can identify improperly stored materials, activities that should not be performed outside (e.g., changing automotive fluids, vehicle washing), and poor housekeeping practices.

Recommendations for the Permit Writer

If the permitting authority has an established site inspection protocol to be used in the comprehensive assessment, it should be included and referenced here. The list of pollutants in this section should be modified or expanded based on pollutants of concern in the permitting authority's jurisdiction.

6.3 Development of Facility-Specific Stormwater Management SOPs and Implementation of Facility Stormwater Controls

Example Permit Provision

6.3.1 Facility-specific Stormwater Management SOPs for "High Priority" Facilities:

a. For each "high priority" facility or operation identified in Part 6.2, the permittee must develop a site-specific SOP that identifies stormwater controls (i.e., structural and non-structural controls, and operational improvements) to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater. At a minimum, the facility-specific SOP must include the stormwater control measures described below in Part 6.3.2, as well as inspection and visual monitoring procedures and schedules described in Part 6.3.3.

b. A copy of the facility-specific stormwater management SOP must be maintained and be available for review by the permitting authority. The SOP must be kept on-site at each of the municipally-owned or operated facilities' offices for which it was completed. The SOP must be updated as necessary.

c. The permittee must install, implement, and maintain all stormwater controls required per Part 6.3.2 of this permit and included in the facility's site-specific SOP.

6.3.2 Stormwater Controls for "High Priority" Facilities – The following stormwater controls must be implemented at all "high priority" municipally-owned or operated facilities identified in Part 6.2. A description of any controls included in this part and any standard operating procedures developed to comply with this part must be included as part of the of each facility's SOP:

a. General good housekeeping – The following good housekeeping practices must be implemented for all facilities identified as "high priority":

1. The permittee must keep all municipally-owned or operated facilities neat and orderly, minimizing pollutant sources through good housekeeping procedures and proper storage of materials.

2. Materials exposed to stormwater must be covered where feasible (without creating additional impervious surfaces, if possible).

b. De-icing material storage – The permittee must store salt and other de-icing materials in a permanent storage structure, unless stormwater runoff from the storage piles is not discharged, or if discharges from the piles are authorized under another stormwater permit. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal

tarping must be used as an interim control measure until the permanent structure is completed. If a permanent storage facility is not feasible, the permittee must provide a rationale to the permitting authority as to why and what alternate BMPs will be utilized instead.

Where a permanent storage structure is present, the permittee must perform regular maintenance and inspections of the permanent storage structure.

c. Fueling operations – The permittee must continue to implement standard operating procedures for vehicle fueling and receiving of bulk fuel deliveries at municipally-owned or operated facilities with the goal of reducing the likelihood of spills, and providing spill controls in the event that accidental spills do occur.

d. Vehicle maintenance – The permittee must continue to implement a standard operating procedure for vehicle maintenance and repair activities that occur at municipally-owned or operated facilities with the goal of reducing the likelihood of spills or releases and providing controls in the event that accidental spills do occur. The standard operating procedures must include regular inspections of all maintenance areas and activities.

e. Equipment and vehicle washing – The discharge of equipment and vehicle wash wastewater to the MS4 or directly to receiving waters from municipal facilities is prohibited. The permittee may meet this requirement by either installing a vehicle wash reclaim system, capturing and hauling the wastewater for proper disposal, connecting to sanitary sewer (where applicable and approved by local authorities), ceasing the activity, and/or applying for and obtaining a separate stormwater permit.[22]

6.3.3 Inspections and Visual Monitoring:

a. Weekly visual inspections – The permittee must perform weekly visual inspections to ensure materials and equipment are clean and orderly, and to minimize the potential for pollutant discharge. The permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility, and records kept with the SWMP document. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

b. Quarterly comprehensive inspections – At least once per quarter, a comprehensive inspection of "high priority" facilities, including all stormwater controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

[22] New Jersey Tier A Phase II MS4 Permit (NJ0141852) (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf)

c. Quarterly visual observation of stormwater discharges – At least once per quarter, the permittee must visually observe the quality of the stormwater discharges from the "high priority" facilities (unless climate conditions preclude doing so, in which case the permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied within three days or before the next storm event, whichever is sooner. Visual observations must be documented, and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

Example Permit Requirement Rationale for the Fact Sheet

Each municipal facility will require a different set of control measures depending on the nature of activities that occur there and the types of materials that are stored and used. Developing and maintaining a site-specific SOP for each facility will help to ensure that employees responsible for facility operation are aware of the stormwater controls required for the site.

There are a number of storage areas and activities that are common at municipal facilities that have a high potential for polluting stormwater:

- Deicing materials, particularly road salt, are easily liberated and transported by rainfall, and constituents such as chloride are not removed by most stormwater controls.
- Fueling and vehicle maintenance and storage areas are prone to spills and drips of various automotive fluids.
- Equipment and vehicle washing areas are designed to mix water with dirt and hydrocarbons, requiring special treatment of the wastewater (including pretreatment and diversion to the sanitary sewer, if allowed) and protection of wash areas from rainfall and runoff.

The best way to avoid pollutant discharges from these sources is to keep precipitation and runoff from coming into contact with stored chemicals and activity areas that use chemicals and materials, which can become sources of stormwater pollutants. For example, the permittee must cover stockpiles, create dedicated structures for stored materials, build berms around areas of pavement to prevent clean runoff from contacting contaminated areas, and maintain a minimum distance between stockpiles and stormwater infrastructure and receiving waters. These are just a few of the ways in which these potential pollutant sources can be protected from precipitation and runoff.

The permit requires that comprehensive site inspections be conducted quarterly, which is an appropriate frequency to ensure that material stockpiles that might be moved or utilized on a seasonal basis are protected from precipitation and runoff. Also, quarterly inspections will allow inspectors to observe different types of operations that occur at different times of the year (e.g., landscape maintenance crews are less active in the winter). Quarterly visual observations are required so that inspectors can see in real time the qualitative nature of the

stormwater discharge and so that corrective action can be taken where necessary to improve on-site stormwater controls.

The permit also specifies that inspection procedures, results, and controls for each facility be documented to ensure that the site inspections are consistent and that maintenance of stormwater controls remains part of the municipality's standard operating procedures. The requirement for an inspection log will allow the permitting authority to verify that periodic site inspections have been performed.

Recommendations for the Permit Writer

Neither Phase I nor Phase II regulations specifically require that MS4 permittees develop facility-specific stormwater management SOPs. However, both Phase I and Phase II require that permittees prevent or reduce pollutant discharge in stormwater from municipal facilities and activities. Requiring permittees to assess high priority facilities and develop appropriate controls for each is an effective way of requiring permittees to address potential sources of pollutants at facilities.

When setting frequency for facility inspections (see Part 6.3.3), the permit writer should consider the number of facilities and the size/complexity of the sites to ensure that enough time is available to complete the assessments.

The list of specific stormwater controls for municipal facilities will vary from place to place based on local and watershed priorities and climate considerations. The permit writer should specify stormwater controls that are appropriate for the local conditions. For example, if a permittee uses satellite locations for temporary storage of deicing materials during snow events, the permit writer may want to consider options other than the permanent storage requirement if the permittee uses the piles within a certain time frame and the piles are covered by temporary tarping or a similar control.

6.4 Storm Sewer System Maintenance Activities

Example Permit Provision

6.4.1 MS4 catch basin maintenance

a. Assessment/prioritization of catch basins – The permittee must assign a priority to each of its catch basin inlets within its jurisdiction as one of the following:

- Priority A – Catch basins that are designated as consistently generating the highest volumes of trash and/or debris
- Priority B – Catch basins that are designated as consistently generating moderate volumes of trash and/or debris
- Priority C – Catch basins that are designated as generating low volumes of trash and/or debris

The permittee must use information compiled from citizen complaints/reports to help in the determination of the appropriate priority level. A description of

the prioritization scheme must be included in the SWMP.

b. Catch basin inspection and cleaning

1. Based on the priorities assigned in Part 6.4.1.a., the permittee must inspect and clean catch basins in accordance with the following schedule:

- Priority A – [*Insert cleanout frequency, e.g., 3 times per year*]
- Priority B – [*Insert cleanout frequency, e.g., 2 times per year*]
- Priority C – [*Insert cleanout frequency, e.g., 1 time per year*]

The permittee must develop a catch basin cleaning schedule based on the frequency specified in this permit, along with a list of each of its catch basins and the priority assigned to them per Part 6.4.1.a.

2. In addition to catch basin cleanings performed above, the permittee must ensure that any catch basin that is inspected and found to be between one third and one half full of trash and/or debris must be cleaned within [*Insert cleanout frequency e.g., 1 week of discovery*].[23] The permittee must maintain a log of all maintenance performed.

3. The permittee must document that it has performed all required catch basin cleanings in a log that is to be made available for review by the permitting authority upon request.

c. Catch basin labeling – The permittee must ensure that each catch basin includes a legible stormwater awareness message (e.g., a label, stencil, marker, or pre-cast message such as "drains to the creek" or "only rain in the drain"). Catch basins with illegible or missing labels must be recorded and re-labeled within [*insert number of days*] of inspection.

d. Maintenance of surface drainage structures – The permittee must visually monitor permittee-owned open channels and other drainage structures for debris at least [*specify frequency, e.g., once per year*] and identify and prioritize problem areas, such as those with recurrent illegal dumping, for inspection at least [*specify frequency, e.g., three times per year*]. Removal of trash and debris from open channels and other drainage structures must occur [*insert frequency of open channel/drainage structure cleaning, e.g., annually*]. The permittee must document its drainage structure maintenance in a log that is to be made available for review by the permitting authority upon request.

e. Disposal of waste materials – The permittee must develop a procedure to dewater and dispose of materials extracted from catch basins. This procedure must ensure that water removed during the catch basin cleaning process and waste material will not reenter the MS4.

6.4.2 Municipal activities and operations

a. Assessment of municipal activities and operations

[23] EPA's Office of Research and Development documented a threshold sump level of ½ as a break point where solids retainage was either erratic or negative (Catchbasin Technology Overview and Assessment #EPA-600/2-77-051 1977).

1. The permittee must maintain and revise as necessary the operation and maintenance (O&M) activity assessment. The following municipal O&M activities must be included in the assessment for their potential to discharge pollutants in stormwater:
    - Road and parking lot maintenance, including pothole repair, pavement marking, sealing, and re-paving
    - Bridge maintenance, including re-chipping, grinding, and saw cutting
    - Cold weather operations, including plowing, sanding, and application of deicing compounds and maintenance of snow disposal areas
    - Right-of-way maintenance, including mowing, herbicide and pesticide application, and planting vegetation
    - Municipally-sponsored events such as large outdoor festivals, parades, or street fairs
2. The permittee must identify all materials that could be discharged from each of these O&M activities. Typical pollutants associated with these activities include metals, chlorides, hydrocarbons (e.g. benzene, toluene, ethylbenzene, xylene), sediment, and trash.
3. The permittee must develop a set of pollution prevention measures that, when applied during municipal O&M activities, will reduce the discharge of pollutants in stormwater. These pollution prevention measures must include, at a minimum:
    - Replacing materials/chemicals with more environmentally benign materials or methods (e.g., use mechanical methods vs. herbicides, or use water-based paints or thermoplastics rather than solvent-based paints for stripping)
    - Changing operations to minimize the exposure or mobilization of pollutants (e.g., mulch, compost or landfill grass clippings) to prevent them from entering surface waters
    - Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters), consistent with Part 6.3.2.b

    [*If available in your particular State or the municipality, insert relevant section of SWMP, or other relevant document, that includes specific stormwater controls that must be used*.]
4. The permittee must develop and implement a schedule for instituting the pollution prevention measures. At a minimum, with respect to all roads, highways, and parking lots with more than 5,000 square feet of pollutant-generating impervious surface area that are owned, operated, or maintained, the permittee must implement all pollution prevention measures by [*insert deadline*].
5. The results of the assessments and pollution prevention measures, including schedules for implementation, must be documented and made available for review by the permitting authority upon request.

b. Inspection of pollution prevention measures – All pollution prevention measures implemented at municipal facilities must be visually inspected [*insert frequency, e.g., monthly or quarterly*] to ensure they are working properly; a log of inspections must be maintained and made available for review by the permitting authority upon request.

6.4.3 Street Sweeping and Cleaning

a. The permittee must continue to evaluate and rate all municipally-owned streets, roads, and public parking lots within their jurisdiction. The permittee must include in the evaluation the sweeping frequency, timing, and efficiency of existing street sweeping programs. The street sweeping frequency must be based on land use, trash and stormwater pollutant levels generated. At a minimum, the following areas must be regarded as "high priority," for sweeping activities while the "medium priority" and "low priority" areas are recommended:

- High priority – Streets, road segments, and public parking lots designated as high priority include, but are not limited to, high traffic zones, commercial and industrial districts, shopping malls, large schools, high-density residential dwellings, sport and event venues, and plazas. This designation must include areas that consistently accumulate high volumes of trash, debris, and other stormwater pollutants.
- Medium priority – Streets, road segments and public parking lots designated as medium priority include, but are not limited to, medium traffic zones; warehouse districts; and light, small-scale commercial and industrial areas.
- Low priority – Streets and road segments designated as low priority include, but are not limited to, light traffic zones and residential zones.

b. The permittee must show on a map of its service area how the streets, roads, and public parking lots have been rated in accordance with Part 6.4.3.a.

c. Implementing sweeping schedules – The permittee must sweep streets/roads/public parking lots in accordance with the following frequency:

- High priority – average of at least [*insert frequency, e.g., twice per month*]
- Medium priority – average of at least [*insert frequency, e.g., once per month*]
- Low priority – [*insert frequency, e.g., twice per year*]

If a permittee's existing overall street sweeping effort provides equivalent or greater street sweeping frequency relative to the requirements above, the permittee may continue to implement its existing street sweeping program.

d. For areas where street sweeping is technically infeasible (e.g., streets without curbs), the permittee must increase implementation of other trash/litter control procedures to minimize pollutant discharges to storm drains and creeks. The permittee must show on its Part 6.4.3.b map the location of these areas.

e. Sweeping equipment selection and operation

1. When replacing existing sweeping equipment, the permittee must select and operate high-performing sweepers that are efficient in removing pollutants,

including fine particulates, from impervious surfaces.

2. The permittee must follow equipment design performance specifications to ensure that street sweeping equipment is operated at the proper equipment design speed with appropriate verification, and that it is properly maintained.
3. The permittee must operate sweepers to optimize pollutant removal by permitting sweepers access to the curb through the use of parking restrictions that clear the curb or through effective public outreach to inform citizens of sweeping days and times so that voluntary curb clearing can occur.

f. Sweeper Waste Material Disposal – The permittee must develop a procedure to dewater and dispose of street sweeper waste material. This procedure must ensure that water and material will not reenter the MS4.

g. Operator training – Street sweeper operators must be trained to enhance operations for water quality benefit.

h. The permittee must include the following in the SWMP and update as changes are made:

1. A description of the street sweeping frequency and any significant changes in the sweeping frequency map, along with the basis for those changes
2. The types of sweepers used
3. A summary of the proper sweeping operation verification results and street sweeping methods, including the way in which the permittee specifies and confirms the rate or speed at which street miles are covered by sweeper operators
4. The use of additional resources in sweeping seasonal leaves or pick-up of other material
5. A description of the methods for addressing areas identified in Part 6.4.3, considered infeasible for street sweeping

6.4.4 Maintenance of municipally-owned and/or maintained structural stormwater controls

a. The permittee must inspect at least [*insert frequency, e.g., yearly*], and maintain if necessary, all municipally-owned or maintained structural stormwater controls. The permittee must also maintain all green infrastructure practices through regularly scheduled maintenance activities.

Example Permit Requirement Rationale for the Fact Sheet

MS4 Maintenance

Traditional municipal storm drain systems were designed to quickly collect and convey runoff to receiving waters. The purpose of catch basin, inlet, and storm drain cleanouts is to prevent blockages, flooding, and reduce pollution.

Fine particles and pollutants from run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding can accumulate along the curbs of roads in between rainfall events. This results in the accumulation of pollutants such as sediment, nutrients, metals, hydrocarbons, bacteria, pesticides, trash and other toxic chemicals. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the storm drain system. Because they effectively trap solids, they need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows. By doing so the MS4 will prevent trash and litter from ultimately becoming sources of marine debris, which is any man-made, solid material that enters waterways either directly or indirectly.

The permit includes a priority ranking approach for catch basins so that municipal resources are directed to the areas and structures that generate the most pollutants. A priority ranking system is required because some catch basins will accumulate pollutants faster than others based on the nature of the drainage area and whether controls are present upstream of the catch basin. Catch basins with the highest accumulations will need to be cleaned more often than those with low accumulations. The permit language also includes a requirement that triggers catch basin cleaning when a catch basin is one-third full.

Proper storm drain system cleanout includes vacuuming or manually removing debris from catch basins; vacuuming or flushing pipes to increase capacity and remove clogs; removing sediment, debris, and overgrown vegetation from open channels; and repairing structures to ensure the integrity of the drainage system. It is important to conduct regular inspections of all storm sewer infrastructure and perform maintenance as necessary. Though these activities are intended to ensure that the sewer system is properly maintained and that any accumulated pollutants are removed prior to discharge, if not properly executed, cleanout activities can result in pollutant discharges. In selecting maintenance practices, the permittee must carefully evaluate each with an eye towards stormwater pollution potential to minimize unintended pollutant discharges, such as the use of flushing storm drain pipes to remove debris without recapturing the debris further down the pipe.

The materials removed from catch basins may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Street Sweeping and Cleaning

Street and parking lot sweeping is a practice that most municipalities initially conducted for aesthetic purposes. However, the water quality benefits are now widely recognized. Street sweeping also prevents particulate matter associated with road dust from accumulating on public streets and washing into storm drains.

The permit language addresses a number of important factors that impact the effectiveness of a street sweeping program. The first factor is the type of equipment used; the permit language stipulates that when equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up

large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained sediment particles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e., two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated; the permit specifies that equipment be operated according to the manufacturers' operating instructions by operators who have been trained to sweep in accordance with the Permit Requirements in order to protect water quality.

The third determining factor is the degree to which parked cars block sweeper access to the curb; one of the best ways to ensure access to the curb is to establish parking restrictions based on sweeping schedules and to inform residents of the schedule so they can voluntarily move their cars. The permit requires that the permittee institute parking restrictions and/or a public outreach campaign requesting that cars be parked elsewhere to accommodate sweeping schedules.

Because not all streets are suitable for sweeping (e.g., those that don't have a curb and gutter), source controls can be used in place of sweeping in those areas.

The permittee is required to maintain documentation of sweeping events and characterize the quantity and composition of pollutants removed from roadways. Street sweeping data are relatively easy to track and maintain, so the permit includes requirements for reporting and assessment of the effectiveness of the sweeping activities based on equipment used, miles swept, and the amount of materials collected.

The street sweeping material may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials may require special handling and disposal, and my not be authorized to be disposed of in a landfill.

Recommendations for the Permit Writer

MS4 Maintenance

MS4s should have a specific schedule to clean out their storm drains since it will ensure that the debris that is trapped in the system will not move into waterbodies and ultimately become marine debris in the ocean. For additional information to include on marine debris go to the EPA's Marine Debris website (www.epa.gov/owow/oceans/debris).

The frequency and timing of visual assessments and cleaning of storm drains and open channels can be tailored to local climate conditions. For example, one approach would be to require that visual observations and cleanings be conducted before the start of the wet season or before spring snowmelt.

The permitting authority should review and approve dewatering and disposal methods for materials removed from catch basins.

Catch basin labeling is believed to be an effective mechanism for educating residents since it involves a direct reminder that that water or other materials which flow into storm drains is not

treated in any way, but instead drains directly to nearby waterways. There are many methods for labeling catch basins and the permit writer should work with the permittee to determine the most feasible and cost effective method of delivering the "drains to stream" message.

Street Sweeping and Cleaning

Street sweeping frequency and timing can be based on climate conditions and seasonal variation in pollution loading. For example, in cold climates where sand is used for winter road maintenance, the permit language could specify increased sweeping during the winter and prior to the spring snowmelt. In areas with a rainy season, sweeping might be timed to occur before the rainy season starts.

In the fall, sweepers can be used to pick up leaves, as they can contribute 25 percent of nutrient loadings in catch basins. If more substantial piles of leaves are found in the community during the fall, street sweeping activities should be coordinated with leaf pick-up. Equally important is an early spring sweeping before rains begin to pick up sand, de-icing material, and winter debris. More frequent sweeping may reduce the need for catch basin cleaning.

The prioritization of sweeping activities (high, medium, low) should be based on standard categories that are based on traffic frequencies and used to determine service levels for the roadways. The example provided in the permit language is based on specific information for the location.

The permitting authority should review and approve dewatering and disposal methods for street sweeping material.

6.5 Flood Management

Example Permit Provision

6.5.1 Flood Management Projects – Within [*insert deadline, such as two years*] of permit issuance, the permittee must develop and implement a process to assess the water quality impacts in the design of all new flood management projects that are associated with the permittee or that discharge to the MS4. This process must include consideration of controls that can be used to minimize the impacts to site water quality and hydrology while still meeting the project objectives. Beginning [*insert deadline, such as three years*] from date of permit issuance, the permittee must assess at least [*insert number of projects to be evaluated, such as two*] existing flood management projects per year to determine whether changes or additions should be made to improve water quality. [24] A description of this process must be included in the SWMP document.

[24] Eastern Washington Phase II MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

This permit requires that existing flood management projects be prioritized and a set number be evaluated to identify opportunities for water quality retrofits. This is because the focus of stormwater management in the past had been to control flooding and mitigate property damage, with less emphasis on water quality protection. These structures may handle a significant amount of stormwater and therefore offer an opportunity to modify their design to include water quality features for less than the cost of building new controls. This requirement applies not only to new flood control projects, but also to existing structures.

6.6 Pesticide, Herbicide, and Fertilizer Application and Management

Example Permit Provision

6.6.1 Landscape maintenance

a. The permittee must evaluate the materials used and activities performed on public spaces such as parks, schools, golf courses, easements, public rights of way, and other open spaces for pollution prevention opportunities. Maintenance activities for the turf landscaped portions of these can include mowing, fertilization, pesticide application, irrigation, etc. Typical pollutants include sediment, nutrients, hydrocarbons, pesticides, herbicides and organic debris.

b. The permittee must implement the following practices to minimize landscaping-related pollutant generation:

   1. Educational activities, permits, certifications, and other measures for municipal applicators and distributors.
   2. Integrated pest management measures that rely on non-chemical solutions, including
      - Use of native plants, xeriscaping in arid/semi-arid regions (reduces water usage and fertilization)
      - Keeping clippings and leaves away from waterways and out of the street using mulching, composting, or landfilling
      - Limiting application of pesticides and fertilizers if precipitation is forecasted within 24 hours or as specified in label instructions
      - Limiting or replacing pesticide use (e.g., manual weed and insect removal)
      - Limiting or eliminating the use of fertilizers, or, if necessary, prohibiting application within 5 feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a waterbody
      - Reducing mowing of grass to allow for greater pollutant removal, but not jeopardizing motorist safety
   3. Schedules for chemical application that minimize the discharge of such constituents due to irrigation and expected precipitation.

4. The collection and proper disposal of unused pesticides, herbicides, and fertilizers.[25]

Example Permit Requirement Rationale for the Fact Sheet

The permit focuses on requiring source controls to reduce the amount of chemicals used. The permit specifies the use of integrated pest management, selection of native vegetation that is naturally adapted to local conditions and therefore requires fewer chemical and water inputs, reducing exposure of the chemicals to water by scheduling application according to weather forecasts and plant needs, and ensuring that municipal employees who are responsible for storing and handling these materials are educated about their use, disposal, and possible impacts.

Recommendations for the Permit Writer

EPA is currently developing a general permit to control discharges from the application of pesticides to or over, including near, waters of the U.S. EPA is working closely with state NPDES and pesticide control authorities, the regulated community, and environmental organizations to develop its permit that will be required for such discharges beginning in April 2011. It is important to note that some of the permit language in this section may need to be altered to be consistent with the pesticide permit once it is finalized. For up-to-date information, go to EPA's website (www.epa.gov/npdes/agriculture).

6.7 Training and Education

Example Permit Provision

6.7.1 Employee Training Requirements – Permittees must develop an annual employee training program for appropriate employees involved in implementing pollution prevention and good housekeeping practices in the preceding Parts. All new hires must receive training within the first year of their hire date. This annual training must include a general stormwater education component, any new technologies, operations, or responsibilities that arise during the year, and the Permit Requirements that apply to the staff being trained. A description of the program must be maintained for review by the permitting authority. The permittee must also identify and track all personnel requiring training and records must be maintained. Training must begin [*insert deadline*] from the effective date of permit authorization.

[25] San Diego Phase I MS4 Permit (CAS0108758) (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/oc_permit/updates_8_13_09/R9-2009-0002_12Aug09.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The regulations found at 40 CFR 122.34(b)(6) specifically requires that the permittee develop a "training component" that trains employees "to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance." This permit requires employee training for existing and new employees who are involved in performing pollution prevention and good housekeeping practices. All training must include a general stormwater educational component, including an overview of the requirements with which the municipality needs to comply. The permittee is responsible for identifying which staff must attend trainings based on the applicability of the topics listed, and they are required to conduct refresher training on an annual basis.

Recommendations for the Permit Writer

The topics included in the trainings should take into consideration the types of activities in which the municipality engages and the extent to which such activities are performed in-house or contracted.

6.8 Contractor Requirements and Oversight

Example Permit Provision

6.8.1 Requirements for Contractors:

a. Any contractors hired by the permittee to perform municipal maintenance activities must be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management SOPs described above.

b. The permittee must provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs. Oversight procedures must be described in the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Many municipalities use third-party contractors to conduct municipal maintenance activities in lieu of using municipal employees. Contractors performing activities that can affect stormwater quality must be held to the same standards as the permittee. Not only must these expectations be defined in contracts between the permittee and its contractors, but the permittee is responsible for ensuring, through contractually-required documentation or periodic site visits, that contractors are using stormwater controls and following standard operating procedures.

CHAPTER 7: INDUSTRIAL STORMWATER SOURCES

Introduction

Phase I MS4 permittees are required to develop and implement an inspection and oversight program to monitor and control pollutants in stormwater discharges to the MS4 from industrial facilities. Regulations addressing industrial stormwater management in Phase I MS4 permits is found at 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv). Requirements to regulate the stormwater discharges from commercial facilities are found at 40 CFR 122.26(d)(2)(iv)(A).

Included Concepts

- Facility inventory
- Industrial facility stormwater control measures
- Industrial and commercial facility inspections
- Staff training

This program component typically applies only to Phase I MS4 permittees as Phase II federal regulations (40 CFR 122.34(b)) do not specifically address stormwater discharges from industrial facilities and commercial businesses (other than as part of the education and outreach program). However, EPA recommends that permit writers consider including requirements pertaining to stormwater discharges to the MS4 from industrial sources in Phase II permits to further reduce stormwater pollutants from the MS4.

Phase I MS4 regulations specify that several key elements be included in Phase I MS4 stormwater management programs. These elements include: adequate legal authority to require compliance and inspect sites, inspection of priority industrial and commercial facilities, establishing control measure requirements for facilities that may pose a threat to water quality, and enforcing stormwater requirements. In order to implement these requirements, MS4 permits require the development of an inventory of facilities and prioritization protocol and adequate staff training to ensure proper inspection and enforcement of requirements.

7.1 Facility Inventory

Example Permit Provision

7.1.1 Source Identification

a. The permittee must continue to maintain an inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could discharge pollutants in stormwater to the MS4. The inventory must be updated [*insert frequency, e.g. annually*] and available for review by the permitting authority upon request.

b. The inventory must include the following minimum information for each industrial and commercial site/source:

   1. Name

2. Address
3. Physical location of storm drain receiving discharge
4. Name of receiving water
5. Pollutants potentially generated by the site/source
6. Identification of whether the site/source is (1) tributary to an impaired water body segment (i.e., whether it is listed under Section 303(d) of the Clean Water Act) and (2) whether it generates pollutants for which the water body segment is impaired
7. A narrative description including standard industrial classification (SIC) codes, which best reflects the principal products or services provided by each facility.

The use of a geolocational database system is highly recommended.

c. At a minimum, the following sites/sources must be included in the inventory:

1. Commercial Sites/Sources:

[*insert commercial sources that are a priority such as*

- Airplane repair, maintenance, fueling, or cleaning
- Animal facilities
- Automobile and other vehicle body repair or painting
- Automobile (or other vehicle) parking lots and storage facilities
- Automobile repair, maintenance, fueling, or cleaning
- Boat repair, maintenance, fueling, or cleaning
- Building material retailers and storage
- Cement mixing or cutting
- Eating or drinking establishments (e.g., restaurants), including food markets
- Equipment repair, maintenance, fueling, or cleaning
- Golf courses, parks and other recreational areas/facilities
- Landscaping
- Marinas
- Masonry
- Mobile automobile or other vehicle washing
- Mobile carpet, drape or furniture cleaning
- Nurseries and greenhouses
- Painting and coating
- Pest control services
- Pool and fountain cleaning
- Portable sanitary services

- Power washing services
- Retail or wholesale fueling]

2. Industrial Sites/Sources:
   - Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the Multi Sector General Permit or individual NPDES permit
   - Facilities subject to Title III of the Superfund Amendments and Reauthorization Act (SARA)
   - Hazardous waste treatment, disposal, storage and recovery facilities
3. All other commercial or industrial sites/sources tributary to an impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired
4. All other commercial or industrial sites/sources that the permittee determines may contribute a significant pollutant load to the MS4[26]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to develop an inventory of all potential commercial and industrial sites/sources that could contribute pollutants to the MS4. A list of specific commercial and industrial sites/sources is included in the permit, and additional sites/sources can be added if they are likely to discharge a pollutant of concern to an impaired waterbody or they are contributing a significant pollutant load to the MS4.

The inventory information will provide the permittee with information on potential pollutant sources that contribute to its MS4 system, and at what locations in the system into which they discharge. This information will also allow the permittee to prioritize inspections and tailor education and outreach efforts, which will best assist the facility in implementing appropriate pollution prevention practices or other on-site stormwater controls. In addition, the inventory data will allow the permittee to determine whether the facilities may discharge pollutants of concern into impaired waters. Finally, the information contained in the inventory will enable permittees to characterize these facilities and prioritize them based on their potential impact on stormwater quality. By prioritizing facilities in such a manner, the permittee may then establish a targeted approach towards conducting inspections (see Part 7.3 for a discussion of inspection frequency).

In addition, data from NPDES pretreatment programs within the MS4 boundary on significant industrial users (SIUs) could also be used to identify and prioritize the industrial sites in the stormwater program.

[26] San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications.

Recommendations for the Permit Writer

The example permit provision lists specific commercial and industrial sources to be included in the inventory, but permit writers should customize this list to meet specific issues in their area. For example, some permittees may have large industrial areas with few commercial businesses, while others may have a large number of restaurants and retail businesses but no industrial facilities at all. Other permittees may have had past water quality problems at certain types of commercial or industrial sites, in which case such facilities should be included in their inventories.

7.2 Industrial Facility Stormwater Control Measures

Example Permit Provision

7.2.1 The permittee must require industrial and commercial facilities included in the Part 7.1 inventory to select, install, implement, and maintain stormwater control measures. At a minimum, these control measures must:

a. Minimize Exposure – Industrial/commercial facilities must minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings (although significant enlargement of impervious surface area is not recommended). The facilities must consider, where appropriate:

1. Using grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas
2. Locating materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas)
3. Cleaning up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants
4. Using drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible
5. Using spill/overflow protection equipment
6. Draining fluids from equipment and vehicles prior to on-site storage or disposal
7. Performing all cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray
8. Ensuring that all wash water drains to a proper collection system (i.e., not the stormwater drainage system)

b. Follow Good Housekeeping Practices – Industrial/commercial facilities must keep clean all exposed areas that are potential sources of pollutants, using such

measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers.

c. Conduct Maintenance – Industrial/commercial facilities must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.

d. Implement Spill Prevention and Response Procedures – Industrial/commercial facilities must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the facilities must implement:

    1. Procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides,") that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur

    2. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling

    3. Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available.

    4. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies [*Insert appropriate contacts for reporting*]

e. Implement Erosion and Sediment Controls – Industrial/commercial facilities must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.

f. Manage Runoff – Industrial/commercial facilities must divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff, to minimize pollutants in discharges.

g. Address Salt Storage Piles or Piles Containing Salt – Industrial/commercial facilities must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal tarping must be used as an interim control until the permanent structure is completed. Facilities must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another NPDES permit.

h. Conduct Employee Training – All facility employees who work in areas where industrial materials or activities are exposed to stormwater, or who are

responsible for implementing activities necessary to manage stormwater must be trained. Training must be conducted [*insert frequency, e.g. at least annually*].

i. Address Non-Stormwater Discharges – Industrial/commercial facilities must eliminate non-stormwater discharges not authorized by an applicable NPDES permit.

j. Control Waste, Garbage and Floatable Debris – Facilities must ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.

k. Control Dust Generation and Vehicle Tracking of Industrial Materials – Industrial/commercial facilities must minimize generation of dust and off-site tracking of raw, final, or waste materials.[27]

7.2.2 Within the [*insert deadline, e.g. first two years of permit term*], the permittee must notify the owner/operator of each industrial and commercial site/source of the stormwater requirements for control measures in Part 7.2.1.

7.2.3 As necessary to minimize any pollutants causing the applicable receiving waterbody to be listed as impaired, the permittee must require implementation of additional controls for industrial and commercial sites/sources that are tributary to the impaired water body segments and that are likely to generate such impairment pollutants.[28]

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to ensure that the minimum control measures are implemented, as applicable, at every industrial/commercial facility included in its inventory. The minimum measures outlined, when properly selected, designed and implemented, promote prevention and source control, before treatment.

The control measures in this permit are consistent with the control measure requirements found in EPA's 2008 Multi-Sector General Permit (MSGP) for stormwater discharges from industrial activities. The permit writer should ensure that these requirements are consistent with the State's industrial stormwater permit. The control measures in this permit describe specific activities that the permittee must require industrial facilities and commercial sites to implement to minimize stormwater pollution. Another control measure is simply preventing pollutants from coming into contact with precipitation in the first place since this will ensure they are not carried into nearby waterways. General good housekeeping and maintenance procedures are also required. Additional control measures address spill prevention and response, erosion and sediment controls, managing runoff, and controlling discharges from salt storage piles.

[27] 2008 MSGP (Section 2) (www.epa.gov/npdes/pubs/msgp2008_finalpermit.pdf), with modifications
[28] San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications

The control measures must also include employee training, controlling non-stormwater discharges, addressing waste, garbage and floatable debris, and addressing dust generation and vehicle tracking.[29]

The permittee is required to notify industrial and commercial sites of the control measure requirements and their responsibility to implement and comply with the requirements.

Facilities that discharge into impaired waterbodies may be required to implement additional controls as necessary to prevent the discharge of the associated pollutants of concern.

7.3 Industrial and Commercial Facility Inspections

Example Permit Provision

7.3.1 Industrial and Commercial Site Inspection Program

a. The permittee must continue to implement a program to inspect all commercial and industrial facilities included in its Part 7.1(a) inventory. The permittee must describe how this will occur in the SWMP.

b. The inspection program must:

1. Prioritize all facilities into high, medium, and low categories on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a water body, and violation history of the facility. The different priority categories will be assigned different inspection frequencies, with the highest priority facilities receiving more frequent inspections. Describe the process for prioritizing inspections and frequency of inspections. If any geographical areas are to be targeted for inspections due to high potential for stormwater pollution, these areas must be listed in the Inspection Plan.

3. Explain how the priority assigned to any one facility may be modified based on the site inspection findings and the facility's potential to discharge pollutants.

7.3.2 Minimum Inspection Requirements

a. Inspection Frequency – The permittee is required to conduct inspections at the following frequencies, at a minimum:

1. Facilities with high potential for water quality impact must be inspected [*insert frequency, e.g. annually*].

2. Facilities with medium potential for water quality impact must be inspected at least [*insert frequency, e.g. once every three years*].

3. Facilities with low potential for water quality impact must be inspected at least [*insert frequency, e.g. once every 5 years*].

[29] 2008 MSGP Fact Sheet (www.epa.gov/npdes/pubs/msgp2008_finalfs.pdf), with modifications

4. Facilities with either a [*insert violation type*] written violation occurring in the previous year must be inspected at least [*insert frequency, e.g. annually*] until compliance is achieved.
5. For facilities with no exposure of commercial or industrial activities to stormwater, no inspections are required. However, the permittee must continue to track these facilities for significant change in the exposure of their operations to stormwater.

b. Scope of Inspection – Inspections must at a minimum:
   1. Evaluate the facility's compliance with the Part 7.2 requirement to select, design, install, and implement stormwater control measures.
   2. Conduct a visual observation for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater.
   3. Verify whether the facility is required to be authorized under the [*insert applicable NPDES general industrial stormwater permit*], and whether the facility has in fact obtained such permit coverage.[30]
   4. Evaluate the facility's compliance with any other relevant local stormwater requirements.

c. Documentation Requirements – At a minimum, the permittee must document the following for each inspection:

   The inspection date and time;

   The name(s) and signature(s) of the inspector(s);

   1. Weather information and a description of any discharges occurring at the time of the inspection;
   2. Any previously unidentified discharges of pollutants from the site;
   3. Any control measures needing maintenance or repairs;
   4. Any failed control measures that need replacement;
   5. Any incidents of noncompliance observed; and
   6. Any additional control measures needed to comply with the Permit Requirements.

d. Track Inspections – Inspection findings must be tracked to ensure inspections are conducted at the frequency specified in Part 7.3.2.b., highlight and document the recidivism of noncompliant facilities, and aid follow up and enforcement activities.

7.3.3 Enforcement – The permittee must ensure that all necessary follow up and enforcement activities are conducted as necessary to require necessary implementation and maintenance of the control measures described in Part 7.2. The permittee is required to utilize the approved ERP for all enforcement actions.

[30] San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

Example Permit Requirement Rationale for the Fact Sheet

The permittee must design an inspection program that facilitates more frequent inspections of the highest priority facilities. (See 40 CFR 122.26(d)(iv)(C)(1)). This will help maximize use of the permittee's existing inspection resources and ensure that the permittee inspectors are the most visible and the most familiar with the facilities with the highest potential for water quality impact.

The permittee must develop a process for prioritizing inspections and designating all facilities in the industrial and commercial inventory as either a high, medium or low priority. The designation could occur by individual facility or by facility type. The prioritization for individual facilities may be adjusted after the first, or any subsequent, inspection (for example, if a facility is a high priority facility and the inspection reveals it has little potential for stormwater pollution, then the facility could be reprioritized as a low priority facility).

It is important that inspections be conducted in a thorough and consistent manner in accordance with a formal protocol for conducting an inspection. This protocol should be the basis for inspector training as well. Inspections should include a thorough walk-through of the facility.

The documentation of inspections is very important, not only when tracking noncompliance, but also to facilitate effective enforcement action when needed. A timeline of noncompliance and subsequent enforcement action is critical when escalating measures to gain compliance. Typically, the use of inspection forms facilitates complete and consistent documentation among inspectors and over time.

Recommendations for the Permit Writer

The permit writer may choose to define what criteria the permittee will use to determine the priority of each facility on its inventory. For example, the Phase I Los Angeles County MS4 permit specifies which facilities are Tier 1 and Tier 2 and provides the required inspection frequency for each. The permit writer could also automatically designate certain sets of industries to a certain priority category (e.g., all facilities subject to the State's Industrial General Permit could be designated as high priority facilities in the permit). If the permit does not define what criteria are to be used when prioritizing facilities, the permittee should be required to develop this protocol and submit it to the permitting authority for review.

The permit writer should review available industrial and commercial inventories to determine if more specific inspection frequencies should be set. For example, an MS4 with only 10 facilities in the inventory could probably inspect those facilities annually. However, an MS4 with over 2,000 facilities in the inventory may need to set the inspection frequency at a less frequent interval.

7.4 Staff Training

Example Permit Provision

7.4.1 The permittee must ensure that all staff whose primary job duties are implementing the industrial stormwater program is trained to conduct facility inspections. The training must cover what is required under this permit in terms of stormwater control measures, the requirements of other applicable Industrial Stormwater general permits or other related local requirements, the permittee's site inspection and documentation protocols, and enforcement procedures. Follow-up training must be provided every other year to address changes in procedures, techniques, or staffing. Permittees must document and maintain records of the training provided and the staff trained.[31]

Example Permit Requirement Rationale for the Fact Sheet

Inspectors responsible for conducting inspections at industrial/commercial facilities must be trained on the applicable stormwater requirements for the different types of facilities (i.e., industrial, commercial, other). Training must include a summary of federal, state, and local stormwater regulations that may apply to industrial/commercial facilities. Inspectors must be familiar with various types of stormwater control measures commonly used at the types of facilities typically found in the MS4 area and must be able to educate facility operators about such stormwater control measures. In addition, inspectors must understand and use the permittee's established enforcement response plan (see Chapter 1 of this Guide) to gain compliance as necessary. The inspection staff must be proficient in the enforcement escalation procedure and must properly document all enforcement actions accordingly per the ERP.

[31] Western Washington Phase I MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf), with modifications

CHAPTER 8: MONITORING, EVALUATION, AND REPORTING

Introduction

Phase I MS4s are required to conduct discharge characterization, field screening and develop a monitoring program. Phase I MS4s are also required to conduct an assessment of controls. See 40 CFR 122.26(d)(1)(iii), (d)(2)(iii), and (d)(2)(v).

Included Concepts

- Consolidated information tracking system
- Development of a comprehensive monitoring and assessment program
- Evaluation of overall program effectiveness
- Requirements for annual reporting of MS4 activities

Phase II MS4 regulations allow, but do not specifically require, monitoring. Phase II MS4s are required to evaluate program compliance, the appropriateness of identified control measures, and progress toward achieving identified measurable goals. See 40 CFR 122.34(g).

There are many components involved in monitoring and evaluating the effectiveness of a municipal stormwater program. Any comprehensive monitoring program should have clear monitoring objectives to help determine compliance and water quality impacts. Each monitoring program is unique and should be customized to the specific waterbodies, impairments, and pollutant sources of the MS4.

Evaluating the overall effectiveness of the municipal stormwater program should be done using information from the monitoring program, progress toward meeting measurable goals, and other indicators. Without assessing the effectiveness of the stormwater management program the permittee will not know which parts of the program need to be modified to protect and/or improve water quality and instead will essentially be operating blindly. Establishing a comprehensive monitoring and assessment program will enable the permittee to track progress in complying with permit provisions and implementing a program to protect water quality.

8.1 Consolidated Information Tracking System

Example Permit Provision

8.1.1 Within the first [*insert time frame which corresponds to the development of the monitoring program e.g. first two years of permit*], the permittee must develop a tracking system to track the information required in the permit as well as the information required to be reported in the annual report (see Part 8.4).

Example Permit Requirement Rationale for the Fact Sheet

An important part of any municipal stormwater program is to document and track information on activities the permittee undertakes to comply with the Permit Requirements. Tracking should be integrated into each of the minimum measures. For example, tracking the location of illicit discharges may indicate that a specific area has a high incidence of motor oil being dumped into storm drains. Investigations may reveal that homeowners are changing the motor oil in their cars, but not properly disposing it. Therefore, the permittee will need to educate the homeowners in that area regarding proper disposal.

The permittee must develop a tracking system to monitor implementation of its various programs in order to document the permittee's compliance with its Permit Requirements, such as the number of construction sites and industrial facilities inspected. In addition, the tracking system will allow the permitee to monitor the compliance status of those entities within its jurisdiction, such as construction sites and industrial facilities, and to ensure compliance of municipally-owned and operated facilities.

Any tracking system should be coordinated with the monitoring and evaluation programs developed by the permittee. Ideally, a monitoring and evaluation program will link the "actions" (e.g., the inspections, maintenance, education and other activities the permittee implements) with the "results" (e.g., water quality monitoring data, improvements in environmental indicators) of the monitoring program.

In addition, adequate tracking is necessary to generate and provide reports of program progress not only to the permitting authority, but to a permittee's internal management for planning and funding purposes. Ideally, a MS4 permittee will have at least one person in charge of overall coordination, including tracking. While many departments or agencies might implement various stormwater program components, it is helpful for a single person or department to gather and analyze applicable data. This can be accomplished in a number of ways and will vary based on existing data tracking mechanisms used by a permittee, the data being captured and the reporting requirements the permittee must comply with. Ideally, the program would have a database accessible by all parties which specifies the required data. Lacking this, the permittee will need to coordinate all responsible parties. The permittee will need to ensure that responsible parties "mine" all data necessary to adequately represent the program and permit compliance, and specify adequate internal reporting deadlines to guarantee that the data is available in a timely manner for program planning, effectiveness assessments and permit reporting. Some permittees create reporting forms for program component managers to complete and submit by internal deadlines. Regardless of how the permittee coordinates the effort internally, without adequate tracking of data the permittees will not be able to submit annual reports to the permitting authority that provide the necessary information to determine permit compliance.

Recommendations for the Permit Writer

To assist the permittee in ensuring appropriate data is gathered and analyzed, the permitting authority should be very clear regarding annual reporting requirements. In addition, the text for this section should be tailored depending on the permittee. For example, some permittees may be able to develop a GIS-based system complete with the option to upload pictures and inspection reports versus a spreadsheet. In the text provided either system would meet the requirements, but more detailed information can be obtained with the GIS-based system.

8.2 Development of a Comprehensive Monitoring & Assessment Program

Example Permit Provision

8.2.1 The permittee must continue to implement, and revise as necessary, a comprehensive monitoring and assessment program. A description of this program must be included in the SWMP document. The monitoring and assessment program must be designed to meet the following objectives:

a. Assess compliance with this permit;

b. Measure the effectiveness of the permittee's stormwater management program;

c. Assess the chemical, physical, and biological impacts to receiving waters resulting from stormwater discharges;

d. Characterize stormwater discharges;

e. Identify sources of specific pollutants;

f. Detect and eliminate illicit discharges and illegal connections to the MS4; and

g. Assess the overall health and evaluate long-term trends in receiving water quality.

NOTE: Because monitoring programs and requirements are very specific to the MS4 and local water quality impairments, permit writers are directed to the "Recommendations to the Permit Writer" section below for examples of comprehensive monitoring program Permit Requirements.

Example Permit Requirement Rationale for the Fact Sheet

Without clear monitoring objectives and a detailed monitoring plan, it will be difficult for permittees and permitting authorities to evaluate the effectiveness of the municipal stormwater program.

There are numerous factors that should be examined while setting up the water quality monitoring portion of the comprehensive program. Understanding and considering climatic conditions such as precipitation patterns, temperature, and seasonal variations will ensure the study design will collect data that are representative of typical storms in the area and that sampling occurs during times of the year when it is most logical to do so. Acknowledging the different types of land uses within the area will also help the permittee to prioritize monitoring efforts based on the areas most likely to be impacted by stormwater. The type of waterbody monitored must also be considered when selecting sampling locations since pollutants behave differently depending on the environment thereby impacting sampling protocols. For example, sampling in a freshwater lake involves different protocols than monitoring in a tidally influenced river or a first order stream. Waterbody type can also influence the data results and conclusions (e.g. freshwater wetlands typically have high denitrification rates that will likely impact the results of nitrate sampling).

Selection of specific sampling locations is also very important. If particular sites are of concern, then monitoring both above and below the sites to figure out their contributions to the overall water quality issues may make sense. Also, the actual location in the waterbody is important to specify for consistency. For example, should samples be taken close to the stream bank or in the center of the waterbody, in riffles or pools? The answers to these questions, of course, depend on the goals of the monitoring and the constituents (biological, chemical, hydrological) being examined.

In addition, the number and frequency of samples collected and stream assessments performed will determine how robust the data will be (see page 287 in *National Research Council's Report Urban Stormwater Management in the United States (2009*) available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf). Monitoring may or may not be tied to specific wet weather events (i.e. within 72 hours after a rainfall event). A combination of specific wet weather samples and dry weather samples may be appropriate.

Establishing objectives with associated indicators (environmental or administrative) for each minimum measure can help put each component into perspective when considering the overall program. Indicators are one way to evaluate the success of the program from the overall program level. Developing standard environmental indicators is a critical step to evaluate the SWMP. Permittees need practical tools, such as these indicators, in order to determine if their stormwater programs are working, and that help elucidate where additional efforts may be most critical. Environmental indicators should be selected based on the type (estuarine/freshwater/brackish) and condition (impaired/non-impaired) of the waterbody to which stormwater is discharged as well as the intended use of the area where the stormwater is discharged (source water protection area, etc.).

In addition, permittees should document certain administrative efforts associated with developing and implementing their SWMPs. In this context 'administrative' is considered quite broad, including such things as control measures, inspection programs, policies and rules, MS4 system scope and condition, educational efforts and any other variable or outcome that could reflect on the quality of a stormwater program other than the actual environmental quality outcomes, which are covered under 'Environmental Indicators'.

Good administrative indicators are numerous, and good suites of indicators will vary from one community to another. More information can be obtained on each of the environmental and administrative indicators listed by going to the Stormwater Manager's Resource Center (www.stormwatercenter.net) and selecting "Monitor/Assess" on the left navigation bar.

Several protocols have been developed to assess the effectiveness of stormwater control measures:

- Guidance for Evaluating Emerging Stormwater Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE) www.ecy.wa.gov/biblio/0210037.html . This guidance document's primary purpose is to establish a testing protocol and process for evaluating and reporting on the performance and appropriate uses of emerging stormwater treatment technologies.
- Technology Acceptance Reciprocity Partnership (TARP) Protocol for Stormwater Best Management Practice Demonstrations www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp/pdffiles/Tier2protocol.pdf . The purpose of the TARP

Protocol is to provide a uniform method for demonstrating stormwater technologies and developing test quality assurance (QA) plans for certification or verification of performance claims.

- BMP Performance Verification Checklist. This is a tool that helps permittees provide a consistent set of questions for applicants proposing to use manufactured and proprietary BMP. It is available as Tool # 8 of the Center for Watershed Protection's *Managing Stormwater in Your Community*. The checklist is accompanied by an explanation and instructions for using the checklist, technical appendices, and a matrix that compares existing verification protocols, such as TARP and TAPE.

Additional monitoring resources include:

- CWP, 2008, *Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs* (www.cwp.org)
- Geosyntec Consultants and Wright Water Engineers, 2009, *Urban Stormwater BMP Performance Monitoring*, (bmpdatabase.org/MonitoringEval.htm)
- CASQA, 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance* (www.casqa.org)

Recommendations for the Permit Writer

Because of the site-specific nature and variability of these monitoring programs between permittees, the detailed requirements should be provided by each permit writer. For example, the Phase I regulations included specific monitoring requirements while the Phase II regulations allow, but do not specifically require monitoring. To assist permit writers, several examples of monitoring requirements from existing MS4 permits are listed below:

- Baltimore County, MD Phase I MS4 permit (issued 2005); see the watershed assessment and planning requirements (Part II.F) and assessment of controls (Part II.H) www.mde.state.md.us/assets/document/sedimentStormwater/MSSPermit/BA%20final%20permit.pdf
- Southern California Regional Bioassessment Monitoring Program (this is a regional monitoring program involving coastal counties in Southern California) www.socalsmc.org/Docs/SMC-DesignofBioassessmentRegionalMonitoringProgram.pdf
- San Diego, CA Phase I MS4 Permit (issued 2007); see Receiving Waters and Urban Runoff Monitoring and Reporting Program. www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf

The permit writer could consider the role of partnerships among the MS4s in establishing and implementing the monitoring programs so that any data collected is robust, useful, and meaningful. In addition, communities may benefit more by working with local organizations and/or neighboring communities who are already collecting similar data. By doing so resources may be used more efficiently and results of testing may be more robust.

The permit writer should also require the permittee to assess the effectiveness of the SWMP in meeting applicable Permit Requirements. The sampling protocols developed must support the goals of the monitoring program. The monitoring and assessment program must include water quality monitoring as well as an assessment of environmental and administrative indicators. Along these lines, the permit writer could also add requirements such as the ones provided below:

Water Quality Monitoring

a. *The Permittee must develop a water quality monitoring program that includes [insert specific monitoring programs and requirements, such as:*

   - Ambient receiving water monitoring,
   - Biological monitoring,
   - Control measure performance monitoring, or
   - Discharge (wet weather) monitoring

   Because the detailed monitoring program requirements are very unique to each MS4, the permitting authority should insert here the specific details of the relevant monitoring program, such as monitoring type, frequency, location, etc.]

b. When determining water quality monitoring components, the permittee must examine and consider a variety of factors, including, but not limited to:

   - Climatic conditions, including precipitation patterns, temperature, and seasonal variations
   - Land uses in the MS4
   - Waterbody type

c. The permittee must consider and address specific sampling quality assurance/quality control protocols, including, but not limited to:

   - Specific chemical constituents (pollutants), biological stream indicators, and physical stream indicators that will be monitored to best achieve the purpose of the monitoring
   - Sampling locations
   - Number and frequency of sample collection and assessments
   - Timing of sample collection

d. The permittee must determine if any similar monitoring is occurring within the MS4 and if it is logical to link efforts.

Environmental Indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] environmental

indicators from each category listed below (physical and hydrologic indicators; biological indicators; water quality indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Physical and hydrological indicators

- Stream widening/ downcutting
- Physical habitat quality
- Impacted dry weather flows
- Increased flooding frequency
- Stream temperature monitoring

Biological indicators

- Fish assemblage analysis
- Macro-invertebrate assemblage
- Single species indicator
- Composite indicators
- Other biological indicators

Water quality indicators

- Water quality pollutant constituent monitoring
- Toxicity testing
- Non-point source loadings
- Exceedance frequencies of water quality standards
- Sediment contamination
- Human health criteria

Administrative indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] administrative indicator from each category listed below (social indicators; programmatic indicators; site indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Social indicators

- Public attitude surveys
- Industrial/commercial pollution prevention
- Public involvement and monitoring
- User perception

Programmatic indicators

- Number of illicit connections identified and corrected
- Number of control measures installed, inspected, and maintained
- Permitting and compliance
- Growth and development

Site indicators

- Control measure performance monitoring
- Industrial site compliance monitoring

Performance Monitoring of Stormwater Controls

When monitoring the performance of stormwater controls, EPA recommends that percent removal efficiencies are not calculated and compared since results can be misleading because the percentages may be based on differing levels of the influent concentration (see cfpub.epa.gov/npdes/stormwater/urbanbmp/bmptopic.cfm#percentremoval for further discussion; also see *National Research Council's Report Urban Stormwater Management in the United States (2009*) available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf).

Modeling can also be a useful tool to quantify the impacts of municipal stormwater management. The following resources provide summaries and reviews of different types of models available to

determine existing loading from an MS4 as well as the effects expected from various stormwater controls.

1. USEPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters
   www.epa.gov/nps/watershed_handbook/

   Chapter 8 of this document focuses on methods for estimating pollutant loads, including the use of watershed models. This chapter provides assistance in selecting and applying watershed models to estimate pollutant loads from existing conditions.

2. USEPA TMDL Model Evaluation and Research Needs
   www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm

   This report documents the review of more than 60 available watershed and receiving water models. It discusses model selection on the basis of model capabilities and provides a series of tables rating the capabilities or applicability the models using the categories of TMDL endpoints, general land and water features, special land processes, special water processes, and application considerations including the selection of appropriate best management practices and their water quality impacts. The document also provides individual fact sheets for each reviewed model.

8.3 Evaluation of Overall Program Effectiveness

Example Permit Provision

8.3.1 *Annual Effectiveness Assessment* – The annual effectiveness assessment must:

a. Use the monitoring and assessment data described in Part 8.2 to specifically assess the effectiveness of each of the following:

   1. Each significant activity/control measures or type of activity/control measure implemented;
   2. Implementation of each major component of the Stormwater Management Program (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Good Housekeeping); and
   3. Implementation of the Stormwater Management Program as a whole.

b. Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 8.3.1.a above.

c. Document the permittee's compliance with permit conditions.

8.3.2 Based on the results of the effectiveness assessment, the permittee must annually review its activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Municipal activities/control

measures that are ineffective or less effective than other comparable municipal activities/control measures must be replaced or improved upon by implementation of more effective municipal activities/control measures.

8.3.3 As part of its Annual Reports, the permittee must report on its SWMP effectiveness assessment as implemented under Part 8.3.1 above.

Example Permit Requirement Rationale for the Fact Sheet

A key requirement in the stormwater Phase II rule is a report (40 CFR 122.34(g)(3)) that includes "the status of compliance with permit conditions, an assessment of the appropriateness of identified [control measures] and progress towards achieving identified measurable goals for each of the minimum control measures." This assessment is critical to the stormwater program framework which uses the iterative approach of implementing controls, conducting assessments, and designating refocused controls leading toward attainment of water quality standards.

Building on the monitoring and assessment program developed in Part 8.2, the permittee must conduct an annual effectiveness assessment to assess the effectiveness of significant control measures, SWMP components, and the SWMP as a whole. The California Stormwater Quality Association's (CASQA) *Municipal Stormwater Program Effectiveness Guidance* describes strategies and methods for assessing effectiveness, including examples of effectiveness assessment for each SWMP program component. The CASQA Effectiveness Guidance is available at www.casqa.org for purchase. A two-hour EPA webcast focusing on the CASQA Guide is also available (available at www.epa.gov/npdes/training under "Assessing the Effectiveness of Your Municipal Stormwater Program"). A resources document from the webcast includes a 10 page summary of the Guide and example pages from the municipal chapter (www.epa.gov/npdes/outreach_files/webcast/jun0408/110961/municipal_resources.pdf).

The *Municipal Stormwater Program Effectiveness Assessment Guidance* synthesizes information on designing and conducting program effectiveness assessments. The document also explains how to select certain methods based on programmatic outcomes and goals. The reader is led through a series of questions and case studies to demonstrate how proper assessments are selected. Techniques are related to different level of outcomes: level one – documenting activities, level two – raising awareness, level 3 – changing behavior, level 4 – reducing loads from sources, level 5 – improving runoff quality, and level 6 – protecting receiving water quality. The Guide includes fact sheets for all six NPDES program elements, outlining methods and techniques for assessing effectiveness of each program.

Recommendations for the Permit Writer

Adaptive management is the appropriate process for assessing new opportunities for improving program effectiveness in controlling stormwater pollution. The permit writer should require the permittee to use adaptive management throughout the permit term to assess options for improving controls on stormwater discharges as compared with measurable goals and demonstrated by monitoring and assessment protocols. The permit writer should have the permittee monitor and

assess the data and analyses required under the permit as well as applicable information from other sources in the adaptive management process.

In addition, the permit writer should have the permittee assess and modify, as necessary, any or all existing SWMP components and adopt new or revised SWMP components to optimize reductions in stormwater pollutants through an iterative process. This iterative process should include routine assessment of the need to further improve water quality and protect beneficial uses, review of available technologies and practices to accomplish the needed improvement, and evaluate resources available to implement the technologies and practices.

8.4 Requirements for Annual Reporting of MS4 Activities

Example Permit Provision

8.4.1 Summary Annual Report - The Permittee must submit annual reports on or before [*specify deadline, e.g., the anniversary date of this permit*] for the reporting period [*specify the reporting period, e.g., July 1-June 30*]. The Permittee must use the Summary MS4 Annual Report template in Appendix A to document a summary of the past year activities. All of the information required on this form must be completed.

8.4.2 Detailed Annual Report - The Permittee must also submit a detailed annual report that addresses, for the activities described in the SWMP document required in Part 1.1, the following:

- A summary of past year activities, including where available, specific quantities achieved and summaries of enforcement actions. See Part 8.4.3 for required information specific to certain SWMP areas.
- A description of the effectiveness of each SWMP program component or activity (see Part 8.3); and
- Planned activities and changes for the next reporting period, for each SWMP program component or activity.
- Detailed fiscal analysis described in Part1.4.2.

8.4.3 [*Specify any additional information and/or data pertaining to implementation of priority activities the Permitting Authority would like to see in Annual Reports, e.g. a list of green roofs (with square footage) installed in the MS4, a summary of water quality monitoring data collected for a specific waterbody, etc*.]

The Annual Report must clearly refer to the Permit Requirements, and describe in quantifiable terms, the status of activities undertaken to comply with each requirement.

Example Permit Requirement Rationale for the Fact Sheet

In general, an annual report must document and summarize implementation of the SWMP during the previous year and evaluate program results and describe planned changes towards continuous improvement. The annual report also can serve as a "state of the SWMP" report for the general public or other stakeholders in the community. While records are to be kept and made available to the public, the annual report is an excellent summary document to provide as well.

Recommendations for the Permit Writer

EPA recommends using its Summary Annual Report Template (see Appendix A) in this guidance in order to obtain summary information about the status of MS4 programs. In addition to the summary annual report template, permittees must also submit a more detailed annual report.

The permit writer may determine that additional, more detailed, information is needed to determine compliance with the Permit Requirements. Even if these reporting details are not required within the permit, the permitting authority and enforcement officials can still request them at any time or during a program audit.

MS4 permits should require permittees to summarize and analyze data concerning the effectiveness of the SWMP and submit the analysis to the permitting authority. For example, the permittees should address such questions as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the MS4 need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?

- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations). How has the permittee responded to these trends? Over the last year, how many construction site plan reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

At a minimum, the permit should require that the annual report clearly illustrate three key items for each SWMP area:

- **Summary of the Year's Activities**. The summary should describe and quantify program activities for each SWMP component. Responsible persons, agencies, departments or co-permittees should be included. Each activity should be described in relation to achievement of established goals or performance standards.

- **Description of SWMP Effectiveness**. An annual report should not only describe the previous year's activities, but should also highlight the SMWP's effectiveness (see Part 8.3) using the indicators required in Part 8.2.

- **Planned Activities and Changes**. The annual report should describe activities planned for the next year highlighting any changes made to improve control measures or program effectiveness.

Also, although the stormwater Phase II rule requires reports, after the first permit term, to be submitted in only years two and four of the permit term, EPA strongly encourages annual reports for all permittees.

APPENDIX A: SUMMARY ANNUAL REPORT TEMPLATE

National Pollutant Discharge Elimination System Stormwater Program
Small MS4 Report Form

The purpose of this report is to contribute information to an evaluation of the NPDES small municipal separate storm sewer system (MS4) permit program. Consistent with 40 CFR §122.37 the U.S. Environmental Protection Agency is assessing the status of the program nation-wide. A "no" answer to a question does not necessarily mean noncompliance with your permit or with the federal regulations. In order to establish the range of variability in the program it is necessary to ask questions along a fairly broad performance continuum. Your permitting authority may use some of this information as one component of a compliance evaluation.

1. MS4 Information

_____

Name of MS4

_____ _____ _____

Name of Contact Person (First) (Last) (Title)

_____ _____

Telephone (including area code) Email

_____

Mailing Address

_____ ____ _____

City State ZIP code

What size population does your MS4 serve? _____ NPDES number _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? ☐ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

_____

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☐ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☐ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☐ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

_____

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

_____

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☐ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

Erosion and sediment control requirements? ☐ Yes ☐ No

Other construction waste control requirements? ☐ Yes ☐ No

Requirement to submit construction plans for review? ☐ Yes ☐ No

MS4 enforcement authority? ☐ Yes ☐ No

B. Do you have written procedures for:

Reviewing construction plans? ☐ Yes ☐ No

Performing inspections? ☐ Yes ☐ No

Responding to violations? ☐ Yes ☐ No

C. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. _____

D. How many of the sites identified in 4.C did you inspect during this reporting period? _____

E. Describe, on average, the frequency with which your program conducts construction site inspections.

_____

F. Do you prioritize certain construction sites for more frequent inspections? ☐ Yes ☐ No

If Yes, based on what criteria? _____

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes Notice of violation #_____ No Authority ☐

☐ Yes Administrative fines #_____ No Authority ☐

☐ Yes Stop Work Orders #_____ No Authority ☐

☐ Yes Civil penalties #_____ No Authority ☐

☐ Yes Criminal actions #_____ No Authority ☐

☐ Yes Administrative orders #_____ No Authority ☐

☐ Yes Other _____ #_____

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☐ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?

_____

J. How often do municipal employees receive training on the construction program? _____

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☐ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☐ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. _____

D. Do you have documented procedures, including frequency, for screening outfalls? ☐ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

_____

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

_____

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☐ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☐ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

_____

L. How often do municipal employees receive training on the illicit discharge program? _____

6. Stormwater Management for Municipal Operations

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces ☐ Yes ☐ No

All municipal construction activities, including those disturbing less than 1 acre ☐ Yes ☐ No

All municipal turf grass/landscape management activities ☐ Yes ☐ No

All municipal vehicle fueling, operation and maintenance activities ☐ Yes ☐ No

All municipal maintenance yards ☐ Yes ☐ No

All municipal waste handling and disposal areas ☐ Yes ☐ No

Other _____

B. Are stormwater inspections conducted at these facilities? ☐ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? _____

D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

_____

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☐ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? _____

G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? ☐ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☐ Yes ☐ No

I. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Stormwater Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for stormwater/water quality of all new and re-development projects?	☐ Yes	☐ No
Long-term operation and maintenance of stormwater management controls?	☐ Yes	☐ No
Retrofitting to incorporate long-term stormwater management controls?	☐ Yes	☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

_____

C. What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.) _____

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☐ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☐ Yes	☐ No
Peak discharge rates	☐ Yes	☐ No
Discharge frequency	☐ Yes	☐ No
Flow duration	☐ Yes	☐ No

F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

_____

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____

H. How many of the plans identified in 7.G were approved? _____

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? _____

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? _____

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections?

_____

L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☐ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? _____

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☐ Yes ☐ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☐ No

P. How often do municipal employees receive training on the post-construction program? _____

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? _____

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? _____

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source: _____ Amount $_____ OR %_____

Source: _____ Amount $_____ OR %_____

Source: _____ Amount $_____ OR %_____

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? _____

E. Do you share program implementation responsibilities with any other entities? ☐ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	**Began Tracking (year)**	**Frequency**	**Number of Locations**

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

10. Additional Information

In the space below, please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

I certify that all information provided in this report is, to the best of my knowledge and belief, true, accurate and complete. ☐ Yes

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official.

Name of Certifying Official, Title

Date (mm/dd/yyyy)

Submit

APPENDIX B: DEFINITIONS

Commencement of Construction – the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material). (Source: 2008 CGP)

Control Measure – any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to waters of the United States. (Source: 2008 CGP)

Discharge – when used without qualification means the "discharge of a pollutant." (Source: 2008 CGP)

Discharge of Stormwater Associated with Construction Activity – as used in this permit, refers to a discharge of pollutants in stormwater from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck chute washdown, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (Source: 2008 CGP)

Illicit Discharge - any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities. (Source: 40 CFR 122.26)

Large Construction Activity – is defined at 40 CFR §122.26(b)(14)(x) and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Non-Structural Controls – preventative actions that involve management and source controls. Refer also to 40 CFR 122.34(b)(5)(c)(iii). (Source: 40 CFR 122.26)

Qualified Personnel – A person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. (Source: EPA's 2008 Construction General Permit)

Receiving Water – the "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges. (Source: 2008 CGP)

Small Construction Activity –includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb

less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Stormwater control measure – see control measure.

Structural Control - physically designed, installed, and maintained practices used to prevent or reduce the discharge of pollutants in stormwater, to minimize erosion, and/or to minimize the impacts of stormwater on waterbodies.

Wasteload Allocation – the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. Wasteload allocations constitute a type of water quality-based effluent limitation. (40 CFR 130.2)

ATTACHMENT 5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

APR 10 2008

Ms. Tam M. Doduc, Chair
Ms. Dorothy R. Rice, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Doduc and Ms. Rice:

I understand that certain specific provisions of the 2001 Municipal Separate Storm Sewer System ("MS4") permit for the County of Los Angeles have been called into question as going beyond what is required under section 402(p) of the CWA. (Commission on State Mandates, File Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.) The permit conditions at issue are: 1) the requirements for conducting inspections at industrial and commercial facilities including, restaurants and automobile servicing, [Parts 4.C.2.a. and b.] and, 2) the requirement for permittees not subject to the Trash TMDL to locate and maintain trash receptacles at transit stops [Part 4.F.5.c.3.]. California RWQCB, Los Angeles Region, Order No. 01-182, NPDES No. CAS004001 (Dec. 13, 2001). This letter discusses these permit conditions in the context of EPA's expectations for MS4 permits.

Section 402(p) of the Clean Water Act, 33 U.S.C. 1342(p), requires EPA (or authorized states) to issue National Pollutant Discharge Elimination System ("NPDES") permits to regulate the discharge of stormwater from MS4s. Typically, these MS4s are owned and operated by cities and counties. Pursuant to the Clean Water Act, these permits must require the MS4 to: 1) "effectively prohibit" non-stormwater discharges, and 2)"reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. 1342(p)(3)(B)(ii) and (iii).

The NPDES regulations require medium and large MS4s to develop stormwater management programs that the permitting authority will consider when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Stormwater permitting has generally relied on the use of best management practices ("BMPs"), including both structural and non-structural controls, for achieving compliance with these requirements. The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754 (Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process."); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and

expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards"). See also, "Evaluating the Effectiveness of Municipal Stormwater Programs" (January 2008) (http://www.epa.gov/npdes/pubs/region3_factsheet_swmp.pdf). While the standard of "maximum extent practicable" (MEP) allows for flexibility, that flexibility is not boundless and requires some level of vigor. EPA has created a national menu of stormwater BMPs to provide additional guidance concerning appropriate BMPs for stormwater management plans. Other factors to consider in ensuring appropriate controls include "technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness." Building Indus. Ass'n v. State Water Res. Control Bd., 124 Cal. App. 4th 866, 889 (2004). See also "In re Cities of Bellflower, et al.", SWRCB 2000-11.

At the outset, I note the Los Angeles MS4 permit is a third generation Phase I MS4 permit that should be building upon the experiences from previous permits. Both of the provisions at issue here seem well within a reasonable expectation of controls that reduce pollutants to the "maximum extent practicable." EPA regulations at 40 C.F.R. §122.26(d)(2)(iv) set forth the basic elements to be included in a Phase I MS4's stormwater management program. Subparagraph (A) requires a description of "source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the [MS4] that are to be implemented during the life of the permit." Subparagraph (B) requires a program for detection and removal of illicit discharges and improper disposal into the storm sewer, including a program for inspections and enforcement. A program for commercial and industrial facility inspection and enforcement that includes restaurants and automobile facilities, would appear to be both practicable and effective. Such an inspection program ensures that stormwater discharges from such facilities are reducing their contribution of pollutants and that there are no non-stormwater discharges or illicit connections. Thus these programs are founded in both 402(p)(3)(B)(ii) and (iii) and are well within the scope of 40 C.F.R. §122.26(d)(2)(iv)(A) and (B).[1]

Similarly, maintaining trash receptacles at all public transit stops is well within the scope of these regulations. Among the minimum controls required to reduce pollutants from runoff from commercial and residential areas are practices for "operating and maintaining public streets, roads, and highways . . . ." §122.26(d)(2)(iv)(A)(3). I believe these requirements are also practical and effective.[2] Moreover, this permit provision is consistent with EPA's national menu

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[1]EPA's "MS4 Program Evaluation Guidance" (January 2007) envisions that an MS4 permit would include a requirement for an inspection program for common industrial/commercial businesses, such as restaurants and gas stations, within the jurisdiction of the MS4. Id. at 76 - 77, 81. The inspection requirements of the LA MS4 permit are consistent with the recommended activities in the Guide.

[2]The provision applicable to the TMDL permittees is also clearly consistent with EPA's 2002 guidance on TMDLs and storm water permitting. "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit

of BMPs for stormwater management programs, which recommends a number of BMPs to reduce trash discharges. See http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=5. Among the recommendations is "improved infrastructure" for trash management when necessary, which includes the placement of trash receptacles at appropriate locations based on expected need. The requirements of the Los Angeles County MS4 permit are consistent with this recommendation. See also, "MS4 Program Evaluation Guidance" (January 2007) at pp. 50, 79. EPA's expectations of the programs to reduce pollutants to the maximum extent practicable specifically refer to control of litter and trash, regardless of whether the particular receiving water is already impaired for trash.

I hope that this explanation helps clarify EPA's expectations for MS4 permit requirements under the Clean Water Act. I look forward to continuing to work with the State on our shared goal of ensuring consistency and effectiveness in storm water permitting as a vital tool in protecting the quality of our waters. Should you have further questions about these issues, please have your staff contact Douglas Eberhardt of my staff at (415) 972-3420 or have your counsel's office contact Laurie Kermish of the Office of Regional Counsel at (415) 972-3917.

Sincerely,

Alexis Strauss 10 April 2008

Alexis Strauss
Director, Water Division

cc: Mr. Michael Lauffer, Chief Counsel
State Water Resources Control Board

Ms. Paula Higashi, Executive Director
Commission on State Mandates

Requirements Based on Those WLAs" (November 22, 2002) which is available at: http://cfpub.epa.gov/npdes/pubs.cfm?program_id=6

ATTACHMENT 6

PERMIT FOR THE DISTRICT OF COLUMBIA
MUNICIPAL SEPARATE STORM SEWER SYSTEM

TABLE OF CONTENTS

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1.1 Permit Area

This permit covers all areas within the jurisdictional boundary of the District of Columbia served by, or otherwise contributing to discharges from, the Municipal Separate Storm Sewer System (MS4) owned or operated by the District of Columbia. This permit also covers all areas served by or contributing to discharges from MS4s owned or operated by other entities within the jurisdictional boundaries of the District of Columbia unless those areas have separate NPDES MS4 permit coverage or are specifically excluded herein from authorization under the District's stormwater program. Hereinafter these areas collectively are referred to as "MS4 Permit Area".

1.2 Authorized Discharges

This permit authorizes all stormwater point source discharges to waters of the United States from the District of Columbia's MS4 that comply with the requirements of this permit. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate NPDES permits.

This permit authorizes the following non-stormwater discharges to the MS4 when appropriate stormwater activities and controls required through this permit have been applied and which are: (1) discharges resulting from clear water flows, roof drainage, dechlorinated water line flushing, landscape irrigation, ornamental fountains, diverted stream flows, rising ground waters, uncontaminated ground water infiltration to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation waters, springs, footing drains, lawn watering, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, wash water, fire fighting activities, and similar types of activities; and (2) which are managed so that water quality is not further impaired and that the requirements of the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and EPA regulations are met.

1.3 Limitations to Coverage

1.3.1 Non-stormwater Discharges

The permittee, as defined herein, shall effectively prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with an NPDES permit.

1.3.2 Waivers and Exemptions

This permit does not authorize the discharge of any pollutant from the MS4 which arises from or is based on any existing waivers and exemptions that may otherwise apply and are not consistent with the Federal Clean Water Act and other pertinent guidance, policies, and regulations. This narrative prohibition on the applicability of such waivers and exemptions extends to any activity that would otherwise be authorized under District law, regulations or

ordinance but which impedes the reduction or control of pollutants through the use of stormwater control measures and/or prevents compliance with the narrative /numeric effluent limits of this permit. Any such discharge not otherwise authorized may constitute a violation of this permit.

1.4 Discharge Limitations

The permittee must manage, implement and enforce a stormwater management program (SWMP) in accordance with the Clean Water Act and corresponding stormwater NPDES regulations, 40 C.F.R. Part 122, to meet the following requirements:

1.4.1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the MS4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS);

1.4.2. Attain applicable wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 122.44(k)(2) and (3); and

1.4.3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with the provisions contained in Parts 2 through 8 of this permit, including milestones and final dates for attainment of applicable WLAs, shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term.

2. LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINSTRATION

2.1 Legal Authority

2.1.1 The permittee shall use its existing legal authority to control discharges to and from the Municipal Separate Storm Sewer System in order to prevent or reduce the discharge of pollutants to achieve water quality objectives, including but not limited to applicable water quality standards. To the extent deficiencies can be addressed through regulation or other Executive Branch action, the permittee shall remedy such deficiencies within 120 days. Deficiencies that can only be addressed through legislative action shall be remedied within 2 years of the effective date of this permit, except where otherwise stipulated, in accordance with the District's legislative process. Any changes to or deficiencies in the legal authority shall be explained in each Annual Report.

2.1.2 No later than 18 months following the effective date of this permit, the permittee shall update and implement Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution) ("updated DC Stormwater Regulations"), to address the control of stormwater throughout the MS4 Permit Area. Such regulations shall be consistent with this

permit, and shall be at least as protective of water quality as the federal Clean Water Act and its implementing regulations require.

2.1.3 The permittee shall ensure that the above legal authority in no way restricts its ability to enter into inter-jurisdictional agreements with other District agencies and/or other jurisdictions affected through this permit.

2.1.4 Review and revise, where applicable, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the following standards: (1) standards resulting from issuance of District stormwater regulations required by Section 2.1, paragraph 1 herein; and (2) performance standards required by this permit.

2.2 Fiscal Resources

The permittee, including all agencies and departments of the District as specified in section 2.3 below, shall provide adequate finances, staff, equipment and support capabilities to implement the existing Stormwater Management Program (SWMP) and the provisions of this permit. For the core program the permittee shall provide a dedicated funding source. Each annual report under Part 6 of this permit shall include a demonstration of adequate fiscal capacity to meet the requirements of this permit.

2.3 Stormwater Management Program Administration/Permittee Responsibilities

2.3.1 The Government of the District of Columbia is the permittee, and all activities of all agencies, departments, offices and authorities of the District must comply with the requirements of this permit. The permittee has designated the District Department of the Environment (DDOE) as the agency responsible for managing the MS4 Stormwater Management Program and all activities necessary to comply with the requirements of this permit and the Comprehensive Stormwater Management Enhancement Amendment Act of 2008 by coordinating and facilitating a collaborative effort among other city agencies and departments including but not limited to departments designated as "Stormwater Agencies" by the Comprehensive Stormwater Management Enhancement Amendment Act of 2008:

District Department of Transportation (DDOT);
Department of Public Works (DPW);
Office of Planning (OP);
Office of Public Education Facilities Modernization (OPEFM);
Department of Real Estate Services (DRES);
Department of Parks and Recreation; and
DC Water and Sewer Authority (also known as and hereinafter referred to as DC Water).

Each named entity is responsible for complying with those elements of the permit within its jurisdictional scope and authorities.

2.3.2 DDOE shall coordinate, and all agencies, offices, departments and authorities shall implement provisions of the existing MS4 Task Force Memorandum of Understanding (MOU) dated 2000, updated matrix of responsibilities (January 2008), and any subsequent updates; the MOU between DDOE and DC Water (2012) and any subsequent updates; and other institutional agreements to coordinate compliance activities among agency partners to implement the provisions of this permit. DDOE's major responsibilities under these MOUs and institutional agreements shall include:

1. Convening regular meetings and communication with MS4 Task Force agencies and other committees established to implement this permit to budget, assign and implement projects, and monitor, inspect and enforce all activities required by the MS4 permit.

2. Providing technical and administrative support for the MS4 Task Force and other committees established to implement this permit

3. Evaluating, assessing, and synthesizing results of the monitoring and assessment programs and the effectiveness of the implementation of management practices and coordinating necessary adjustments to the stormwater management program in order to ensure compliance.

4. Coordinating the completion and submission of all deliverables required by the MS4 Permit.

5. Projecting revenue needs to meet MS4 Permit requirements, overseeing the District's stormwater fees to fulfill revenue needs, and coordinating with DC Water to ensure the District's stormwater fee is collected.

6. Making available to the public and other interested and affected parties, the opportunity to comment on the MS4 stormwater management program.

2.3.3 Within 180 days of permit issuance, the permittee shall complete an assessment of additional governmental agencies and departments, non-governmental organizations, watershed groups or other community organizations in the District and adjacent states to partner with to administer required elements of the permit. Intra- and inter-agency agreements between relevant governmental and nongovernmental organizations shall be established to ensure successful coordination and implementation of stormwater management activities in accordance with the requirements of this permit. Additional government and nongovernmental organizations and programs to consider include; land use planning, brownfields redevelopment, fire department, building and safety, public health, parks and recreation, and federal departments and agencies, including but not limited to, the National Park Service, Department of Agriculture, Department of Defense, and General Services Administration, responsible for facilities in the District.

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

The permittee shall continue to implement, assess and upgrade all of the controls,

procedures and management practices, described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements. Updates to the plan shall be consistent with all compliance deadlines in this permit. A current plan shall be posted on the permittee's website at an easily accessible location at all times.

New Stormwater Management Program strategies, elements, initiatives and plans required to be submitted to EPA for review and approval are included in Table 1.

TABLE 1
Elements Requiring EPA Review and/or Approval

Element	**Submittal Date (from effective date of this permit)**
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.5)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

No later than 3 years from the issuance date of this permit the permittee shall public notice a fully updated Plan including all of the elements required in this permit. No later than 4 years from the issuance date of this permit the permittee shall submit to EPA the fully updated plan for review and approval, as part of the application for permit renewal.

The measures required herein are terms of this permit. These permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.

TABLE 2
Legal Authority for Selected Required Program Stormwater Elements

Required Program Application Element	**Regulatory References**
Adequate Legal Authority	40 C.F.R. § 122.26(d)(2)(I)(C)-(F)

Green technology stormwater management practices, which incorporate technologies and practices across District activities.	Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution)
Existing Structural and Source Controls	40 C.F.R. § 122.26(d)(2)(iv)(A)(1)
Roadways	40 C.F.R. § 122.26(d)(2)(iv)(A)(3)
Pesticides, Herbicides, and Fertilizers Application	40 C.F.R. § 122.26(d)(2)(iv)(A)(6)
Municipal Waste Sites	40 C.F.R. § 122.26(d)(2)(iv)(A)(5)
Spill Prevention and Response	40 C.F.R. § 122.26(d)(2)(iv)(B)(4)
Infiltration of Seepage	40 C.F.R. § 122.26(d)(2)(iv)(B)(7)
Stormwater Management Program for Commercial and Residential Areas	40 C.F.R. § 122.26(d)(2)(iv)(A)
Manage Critical Source Areas	40 C.F.R. § 122.26(d)(iii)(B)(6)
Stormwater Management for Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)
Industrial and High Risk Runoff	40 C.F.R. § 122.26(d)(2)(iv)(C), (iv)(A)(5)
Identify Priority Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)(1)
Illicit Discharges and Improper Disposal	40 C.F.R. § 122.26(d)(2)(iv)(B)(1)-(5), (iv)(B)(7)
Flood Control Projects	40 C.F.R. § 122.26(d)(2)(iv)(A)(4)
Public Education and Participation	40 C.F.R. § 122.26(d)(2)(iv)(A)(6), (iv)(B)(5), (iv)(B)(6)

Monitoring and Assessment and Reporting	40 C.F.R. § 122.26(d)(2)(iv)(D)(v)
Monitoring Program	40 C.F.R. § 122.26(d)(2)(iv)(B)(2), (iii), iv(A), (iv)(C)(2)
Characterization Data	40 C.F.R. § 122.26(d)(2)(iii)(B)-(D), 40 C.F.R. § 122.21(g)(7)
Reporting	40 C.F.R. § 122.41(l)

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

4.1 Standard for Long-Term Stormwater Management

The permittee shall continue to develop, implement, and enforce a program in accordance with this permit and the permittee's updated SWMP Plan that integrates stormwater management practices at the site, neighborhood and watershed levels that shall be designed to mimic pre-development site hydrology through the use of on-site stormwater retention measures (e.g., harvest and use, infiltration and evapotranspiration), through policies, regulations, ordinances and incentive programs

4.1.1 Standard for Stormwater Discharges from Development

No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement one or more enforceable mechanism(s) that will adopt and implement the following performance standard for all projects undertaking development that disturbs land greater than or equal to 5,000 square feet:

Require the design, construction and maintenance of stormwater controls to achieve on-site retention of 1.2" of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting and use for all development greater than or equal to 5,000 square feet.

The permittee may allow a portion of the 1.2" volume to be compensated for in a program consistent with the terms and requirements of Part 4.1.3.

4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking

By the end of this permit term the permittee must review and revise, as applicable, stormwater, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the retention performance standard required in

Section 4.1.1. The permittee must also establish/update and maintain a formal process for site plan reviews and a post-construction verification process (e.g., inspections, submittal of as-builts) to ensure that standards are appropriately implemented. The permittee must also track the on-site retention performance of each project subject to this regulatory requirement.

4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities

Within 18 months of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and comment an off-site mitigation and/or fee-in-lieu program to be utilized when projects will not meet stormwater management performance standard as defined in Section 4.1.1. The permittee has the option of implementing an off-site mitigation program, a fee-in-lieu program, or both. Any allowance for adjustments to the retention standard shall be defined in the permittee's regulations. The program shall include at a minimum:

1. Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
2. Specific criteria for determining when compliance with the performance standard requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
3. For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
4. The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

The program may also include incentives for achieving other important environmental objectives such as ongoing measurable carbon sequestration, energy savings, air quality reductions in green house gases, or other environmental benefits for which the program can develop methods for quantifying and documenting those outcomes. Controls implemented to achieve those outcomes are subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls.

District-owned transportation right-of-way projects are subject to a similarly stringent process for determining an alternate performance volume, but for the duration of this permit term need not conduct off-site mitigation or pay into a fee-in-lieu program to compensate for the difference.

4.1.4 Green Landscaping Incentives Program

No later than one year following permit issuance, the permittee shall develop an incentive program to increase the quantity and quality of planted areas in the District while allowing flexibility for developers and designers to meet development standards. The Incentive Program

shall use such methods as a scoring system to encourage green technology practices such as larger plants, permeable paving, green roofs, vegetated walls, preservation of existing trees, and layering of vegetation along streets and other areas visible to the public.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Within two years of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and approval a program that establishes performance metrics for retrofit projects. The permittee shall fully implement the program upon EPA approval. The starting point for the performance metrics shall be the standard in Section 4.1.1. Performance metrics may be established generally for all retrofit projects, or for categories of projects, e.g., roads, sidewalks, parking lots, campuses. Specific site conditions may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1, and a similar calculator or algorithm process may be used in conjunction with a specific site analysis.

4.1.5.2 The permittee, with facilitation assistance from EPA Region III, will also work with major Federal landholders, such as the General Services Administration and the Department of Defense, with the objective of identifying retrofit opportunities, documenting federal commitments, and tracking pollutant reductions from relevant federal actions.

4.1.5.3 For each retrofit project estimate the potential pollutant load and volume reductions achieved through the DC Retrofit program by major waterbody (Rock Creek, Potomac, Anacostia) for the following pollutants: Bacteria (E. coli), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash. These estimates shall be included in the annual report following implementation of the project.

4.1.5.4 The DC Retrofit Program shall implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way.

4.1.5.5 No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement an enforceable mechanism that will adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. The characteristics of these types of projects may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1.

4.1.5.6 The permittee shall ensure that every major renovation/rehabilitation project for District-owned properties within the inventory of DRES and OPEFM (e.g., schools and school administration buildings) includes on-site stormwater retention measures, including but not

limited to green roofs, stormwater harvest/reuse, and/or other practices that can achieve the retention performance standard.

4.1.6 Tree Canopy

4.1.6.1 No later than one year following issuance of this permit, the permittee shall develop and public notice a strategy to reduce the discharge of stormwater pollutants by expanding tree canopy throughout the city. The strategy shall identify locations throughout the District where tree plantings and expanded tree boxes are technically feasible and commit to specific schedules for implementation at locations throughout the District, with highest priority given to projects that offer the greatest stormwater retention potential. The strategy shall also include the necessary elements to achieve the requirements of Section 4.1.6.2.

4.1.6.2 The permittee shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40% by 2035. The annual total tree planting shall be calculated as a net increase, such that annual mortality is also included in the estimate. The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rate. Trees shall be planted in accordance with the Planting Specifications issued by the International Society of Arboriculture as appropriate to the site conditions.

4.1.6.3 The permittee shall annually document the total trees planted and make an annual estimate of the volume of stormwater that is being removed from the MS4 (and combined system, as relevant) in a typical year of rainfall as a result of the maturing tree canopy over the life of the MS4 permit. Also report annually on the status of achieving 40% canopy District-wide.

4.1.7 Green Roof Projects

4.1.7.1 Complete a structural assessment of all District properties maintained by DRES and slated for redevelopment to determine current roof conditions and the feasibility for green roof installation. These assessments shall be performed on an ongoing basis for all properties as they are considered for redevelopment. Based on the structural assessment and other factors, identify all District-owned properties where green roof projects are technically feasible and commit to specific schedules for implementing these projects. Highest priority shall be given to projects that offer the greatest stormwater capture potential.

4.1.7.2 The permittee shall install at a minimum 350,000 square feet of green roofs on District properties during the term of the permit (including schools and school administration buildings).

4.1.7.3 Document the square footage of green roof coverage in the District, whether publicly or privately owned, report any incentive programs implemented during the permit term, and estimate the volume of stormwater that is being removed from the MS4 (and combined

system, as relevant) in a typical year of rainfall as a result of the combined total green roof facilities in the District.

4.2 Operation and Maintenance of Stormwater Capture Practices

4.2.1 District Owned and Operated Practices.

Within two years of the effective date of this permit, develop and implement operation and maintenance protocols and guidance for District-owned and operated on-site retention practices (development and retrofits) to include maintenance needs, inspection frequencies, estimated maintenance frequencies, and a tracking system to document relevant information. Provide training to all relevant municipal employees and contractors, with regular refreshers, as necessary.

4.2.2 Non-District Owned and Operated Practices.

In conjunction with updating of relevant ordinances and policies, develop accountability mechanisms to ensure maintenance of stormwater control measures on non-District property. Those mechanisms may include combinations of deed restrictions, ordinances, maintenance agreements, or other policies deemed appropriate by the permittee. The permittee must also include a long-term verification process of O&M, which may include municipal inspections, 3rd party inspections, owner/operator certification on a frequency deemed appropriate by the permittee, and/or other mechanisms. The permittee must continue to maintain an electronic inventory of practices on private property to include this information.

4.2.3 Stormwater Management Guidebook and Training

4.2.3.1 No later than 18 months from the permit issuance date, the permittee shall finalize a Stormwater Management Guidebook to be available for wide-spread use by land use planners and developers. The Stormwater Management Guidebook shall provide regular updates, as applicable, in a format that facilitates such regular updates, and shall include objectives and specifications for integration of stormwater management technologies, including on site retention practices, in the areas of:

a. Site Assessment.
b. Site Planning and Layout.
c. Vegetative Protection, Revegetation, and Maintenance.
d. Techniques to Minimize Land Disturbance.
e. Techniques to Implement Measures at Various Scales.
f. Integrated Water Resources Management Practices.
g. Designing to meet the required performance standard(s).
h. Flow Modeling Guidance.
i. Hydrologic Analysis.
j. Construction Considerations.
k. Operation and Maintenance

4.2.3.2 The permittee shall continue to provide key industry, regulatory, and other stakeholders with information regarding objectives and specifications of green infrastructure practices contained in the Stormwater Management Guidebook through a training program. The Stormwater Management training program will include at a minimum the following:

a. Stormwater management/green technology practices targeted sessions and materials for builders, design professionals, regulators, resource agencies, and stakeholders.
b. Materials and data from stormwater management/green technology practices pilot projects and demonstration projects including case studies.
c. Design and construction methods for integration of stormwater management/green technology practices measures at various project scales.
d. Guidance on performance and cost of various types of stormwater management/green technology practices measures in the District.

4.3 Management of for District Government Areas

Procedures to reduce the discharge of pollutants in stormwater runoff shall include, but not be limited to:

4.3.1 Sanitary Sewage System Maintenance Overflow and Spill Prevention Response

The permittee shall implement an effective response protocol for overflows of the sanitary sewer system into the MS4. The response protocol shall clearly identify agencies responsible and telephone numbers and e-mail for any contact and shall contain at a minimum, procedures for:

1. Investigating any complaints received within 24 hours of the incident report.
2. Responding within two hours to overflows for containment.
3. Notifying appropriate sewer and public health agencies within 24 hours when the sanitary sewer overflows to the MS4.
4. Notifying the public in a timely and effective manner when SSO discharges to the MS4 may adversely affect public health.

This provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4.

4.3.2 Public Construction Activities Management

The permittee shall implement and comply with the Development and Redevelopment and the Construction requirements in Part 4.6 of this permit at all permittee-owned or operated public construction projects.

The permittee shall obtain discharge authorization under the applicable EPA Construction General permit for construction activities and comply with provisions therein.

4.3.3 Vehicle Maintenance/Material Storage Facilities/ Municipal Operations.

The permittee shall implement stormwater pollution prevention measures at all permittee-owned, leased facilities and job sites including but not limited to vehicle/ equipment maintenance facilities, and material storage facilities.

For vehicle and equipment wash areas and municipal facilities constructed, redeveloped, or replaced, the permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4 by implementing any of the following measures at existing facilities with vehicle or equipment wash areas:

1. Self-contain, and haul off-site for disposal;
2. Equip with a clarifier; or
3. Equip with an alternative pre-treatment device.

4.3.4 Landscape and Recreational Facilities Management, Pesticide, Herbicide, Fertilizer and Landscape Irrigation

4.3.4.1 The permittee shall further reduce pollutants and pollutant discharges associated with the storage and application of pesticides, fertilizers, herbicides, the use of other toxic substances and landscape irrigation according to an integrated pest management program (IPM). The IPM shall be an ecosystem based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties, and use of low or no chemical and irrigation input landscapes, in accordance with the provisions of this permit, procedures and practices described in the SWMP and regulations.

The permittee shall further utilize IPM controls to reduce pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by employees or contractors, to public rights-of-way, parks, and other District property to ensure that:

a. Pesticides are used only if monitoring indicates they are needed according to established guidelines;

b. Fertilizers are used only when soil tests indicate that they are necessary, and only in minimum amounts and for needed purposes (e.g., seed germination).

c. Treatments are made with the purpose of removing only the target organism;

d. Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial, non-target organisms, and the environment;

e. No pesticides or fertilizers are applied to an area immediately prior to an expected rain event, or during or immediately following a rain event, or when water is flowing off the area;

f. No banned or unregistered pesticides are stored or applied;

g. All staff applying pesticides are certified or are under the direct supervision of a pesticide applicator certified in the appropriate category;

h. Procedures are implemented to encourage the retention and planting of native and/or non-invasive, naturalized vegetation to reduce water, pesticide and fertilizer needs;

i. Pesticides and fertilizers are stored indoors or under cover on paved surfaces or enclosed in secondary containment and storage areas inspected regularly to reduce the potential for spills; and

j. Landscapes that maximize on-site retention of stormwater, while minimizing mowing, chemical inputs and irrigation are given preference for all new landscape installation.

4.3.4.2 The permittee shall coordinate internally among departments for the purpose of ensuring that pesticide and fertilizer use within its jurisdiction does not threaten water quality.

4.3.4.3 The permittee shall partner with other organizations to ensure that pesticide and fertilizer use within their jurisdiction does not threaten water quality.

4.3.4.4 The permittee shall continue to conduct education and outreach, as well as provide incentives, to curtail the use of turf-grass fertilizers for the purpose of reducing nitrogen and phosphorous discharges to surface waters. The program shall incentivize the use of vegetative landscapes other than turf grass and other measures to restrict the use of turf grass fertilizers.

4.3.4.5 The permittee shall use GIS layers of public land and sewersheds, as well as background data, to identify priority areas for a targeted strategy to reduce the sources of pesticides, herbicides, and fertilizers that contaminate the stormwater runoff, and report progress toward completing the screening characterization in the next Updated SWMP.

4.3.4.6 The permittee shall include in each Annual Report a report on the implementation of the above application procedures, a history of the improvements in the control of these materials, and an explanation on how these procedures will meet the requirements of this permit.

4.3.5 Storm Drain System Operation and Management and Solids and Floatables Reduction

4.3.5.1 Within 18 months of the effective date of this permit, the permittee shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The permittee shall fully implement the plan upon EPA approval.

4.3.5.2 Until such time as the catch basin maintenance study has been completed and approved, the permittee shall ensure that each catch basin within the DC MS4 Permit Area is cleaned at least once annually during the life of the permit. The permittee shall continue to use strategies for coordinated catch basin cleaning and street-sweeping that will optimize reduction of stormwater pollutants.

4.3.5.3 Within 18 months of the effective date of this permit, and consistent with the 2006 Outfall Survey, the permittee shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022. This schedule may be combined with the catch basin maintenance study outlined in 4.3.5.1. The repair schedule shall be fully implemented upon EPA approval.

4.3.5.4 The permittee shall comply with the Anacostia River Trash TMDL implementation provisions in Part 4.10 of this permit and apply the technologies and other activities developed in the Anacostia River Watershed Trash TMDL throughout the entire MS4 Permit Area. The permittee shall continue to report the progress of trash reduction in the Consolidated Annual Report.

4.3.6 Streets, Alleys and Roadways

4.3.6.1 Street sweeping shall be conducted on no less than 641 acres of roadway in the MS4 area annually in accordance with the following schedule:

TABLE 3
Street Sweeping

Area/Street Classification	Frequency
Arterials-heavily developed commercial and central business districts with considerable vehicular and pedestrian traffic	At least nine (9) times per year
Industrial areas	At least six (6) times per year
Residential-residential areas with limited throughway and pedestrian traffic AND neighborhood streets which are used for local purposes only	At least four (4) times per year
Central Business District/Commercial-neighborhood business districts and main streets with moderate vehicular and pedestrian traffic	At least one (1) time every two weeks

Environmental hot spots in the Anacostia River Watershed	At least two (2) times per month March through October

4.3.6.2 Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation, and these areas should have effective erosion control until stabilized.

4.3.6.3 The permittee shall continue to evaluate and update the use, application and removal of anti-icers, chemical deicers, salt, sand, and/or sand/deicer mixtures in an effort to minimize the impact of these materials on water quality. The permittee shall investigate and implement techniques available for reducing pollution from deicing salts in snowmelt runoff and runoff from salt storage facilities. The permittee shall evaluate and implement the use of porous/permeable surfaces that require less use of deicing materials and activities. This evaluation shall be made a part of an overall investigation of ways to meet the requirements of the Clean Water Act and reported in each Annual Report.

4.3.6.4 The permittee shall continue to implement and update a program to ensure that excessive quantities of snow and ice control materials do not enter the District's water bodies. The permittee shall report its progress in implementing the program in each Annual Report. Except during a declared Snow Emergency when the permittee determines that the foremost concern of snow removal activities is public health and safety, it shall avoid snow dumping or storage in areas adjacent to water bodies, wetlands, and areas near public or private drinking water wells which would ultimately reenter the MS4.

4.3.7 Infrastructure Maintenance/Pollution Source Control Maintenance

The permittee shall continue to implement an operation and maintenance program that incorporates good housekeeping components at all municipal facilities located in the DC MS4 Permit Area, including but not limited to; municipal waste water treatment facility, potable drinking water facility, municipal fleet operations, maintenance garages, parks and recreation, street and infrastructure maintenance, and grounds maintenance operations, libraries and schools. The permittee shall document the program in the Annual Report, as required at Section 6.2 herein. The permittee shall, at a minimum:

1. Continue to implement maintenance standards at all municipal facilities that will protect the physical, chemical and biological integrity of receiving waters.

2. Continue to implement an inspection schedule in which to perform inspections to determine if maintenance standards are being met. Inspections shall be performed no less than once per calendar year and shall provide guidance in Stormwater Pollution Prevention Plan development and implementation, where needed.

3. Continue to implement procedures for record keeping and tracking inspections and maintenance at all municipal facilities.

4. Continue to implement an inspection and maintenance program for all permittee-owned management practices, including post-construction measures.

5. Continue to ensure proper operation of all treatment management practices and maintain them as necessary for proper operation, including all post-construction measures.

6. Ensure that any residual water following infrastructure maintenance shall be self-contained and disposed of legally in accordance with the Clean Water Act.

4.3.8 Public Industrial Activities Management/Municipal and Hazardous Facilities

For any municipal activity associated with industrial activity, as defined by 40 C.F.R. § 122.26, which discharges stormwater to, from and through the DC MS4, the permittee shall obtain separate coverage under either: (1) the EPA Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) (As modified May 27, 2009); or (2) an individual permit.

4.3.9 Emergency Procedures

The permittee may conduct repairs of essential public service systems and infrastructure in emergency situations. An emergency includes only those situations included as conditions necessary for demonstration of an upset at 40 C.F.R. 122.41(n). For each claimed emergency, the permittee shall submit to the Permitting Authority a statement of the occurrence of the emergency, an explanation of the circumstances, and the measures that were implemented to reduce the threat to water quality, no later than required by applicable Clean Water Act regulations.

4.3.10 Municipal Official Training

The permittee shall continue to implement an on-going training program for those employees specified below, and any other employees whose job functions may impact stormwater program implementation. The training program shall address the importance of protecting water quality, the requirements of this permit, design, performance, operation and maintenance standards, inspection procedures, selecting appropriate management practices, ways to perform their job activities to prevent or minimize impacts to receiving waters, and procedures for tracking, inspecting and reporting, including potential illicit discharges. The permittee shall provide follow-up and refresher training at a minimum of once every twelve months, and shall include any changes in procedures, techniques or requirements.

The training program shall include, but is not limited to, those employees who work in the following areas:

1. Municipal Planning
2. Site plan review
3. Design
4. Construction
5. Transportation planning and engineering
6. Street/sewer and right-of-way construction and maintenance
7. Water and sewer departments
8. Parks and recreation department
9. Municipal water treatment and waste water treatment
10. Fleet maintenance
11. Fire and police departments
12. Building maintenance and janitorial
13. Garage and mechanic crew
14. Contractors and subcontractors who may be contracted to work in the above described
15. areas
16. Personnel responsible for answering questions about the permittee's stormwater program,
17. including persons who may take phone calls about the program
18. Any other department of the permittee that may impact stormwater runoff

4.4 Management of Commercial and Institutional Areas

The permittee shall establish and implement policies and procedures to reduce the discharge of pollutants in stormwater runoff from all commercial and institutional (including federal) areas covered by this permit.

The permittee shall ensure maintenance of all stormwater management controls in commercial and institutional land areas in accordance with the following provisions:

1. Tracking all controls;
2. Inspecting all controls on a regular basis, according to an inspection schedule;
3. Ensure compliance with the MS4 permit and municipal ordinances at commercial and institutional facilities.

4.4.1 Inventory of Critical Sources and Source Controls

4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. Critical sources to be tracked shall include the following:

a. Automotive service facilities, *e.g.*, service, fueling and salvage facilities;
b. Industrial activities, as defined at 40 C.F.R. §§ 122.26(b)(14); and
c. Construction sites exceeding one acre, or sites under one acre that are part of a larger common plan of development.
d. Dry cleaners

e. Any other facility the permittee has identified as a Critical Source

4.4.1.2 The permittee shall include the following minimum fields of information for each industrial and commercial facility identified as a critical source:

a. Name of facility and name of owner/ operator;
b. Address of facility;
c. Size of facility; and
d. Activities conducted at the facility that could impact stormwater.
e. Practices and/or measures to control pollutants.
f. Inspection and maintenance schedules, dates and findings.

4.4.1.3 The permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (*e.g.*, business licenses, pretreatment permits, sanitary sewer hook-up permits, and similar information).

4.4.2 Inspection of Critical Sources

The permittee shall continue to inspect all commercial facilities identified in Part 4.4.1. herein and any others found to be critical sources twice during the five-year term of the permit. A minimum interval of six months between the first and the second mandatory compliance inspection is required, unless a follow-up inspection to ensure compliance must occur sooner.

4.4.3 Compliance Assurance.

At each facility identified as a critical source, the permittee's inspector(s) shall verify that the operator is implementing a control strategy necessary to protect water quality. Where the permittee determines that existing measures are not adequate to protect water quality, the permittee shall require additional site-specific controls sufficient to protect water quality.

4.5 <u>Management of Industrial Facilities and Spill Prevention</u>

4.5.1 The permittee shall continue to implement a program to monitor and control pollutants in stormwater discharged from Industrial Facilities located within the MS4 Permit Area, as defined herein, pursuant to the requirements in 40 C.F.R. § 122.26(d)(2)(iv)(C). These facilities shall include, but are not limited to:

a. Private Solid Waste Transfer Stations
b. Hazardous Waste Treatment, Disposal, and/or Recovery Plants
c. Industrial Facilities subject to SARA or EPCRA Title III
d. Industrial Facilities with NPDES Permits
e. Industrial facilities with a discharge to the MS4

4.5.2 The permittee shall continue to maintain and update the industrial facilities database.

4.5.3 The permittee shall continue to perform or provide on-site assistance/inspections and outreach focused on the development of stormwater pollution prevention plans and NPDES permit compliance.

4.5.4 The permittee shall continue to refine and implement procedures to govern the investigation of facilities suspected of contributing pollutants to the MS4, including at a minimum: (i) a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit; and (ii) wet weather screening as required by Part 5.2.1 herein (including collecting data on discharges from industrial sites). These procedures shall be submitted as part of each Annual Report required by Part 6.2 herein.

4.5.5 The permittee shall continue to implement the prohibition against illicit discharges, control spills, and prohibit dumping. Continue to implement a program to prevent, contain, and respond to spills that may discharge to the MS4, and report on such implementation submitted in each Annual Report. The spill response program may include a combination of spill response actions by the permittee and/or another public or private entity.

4.5.6 The permittee shall report progress in developing and carrying out industrial-related programs in each Annual Report required by Section 6 herein. Provide an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act.

4.6 Stormwater Management for Construction Sites

4.6.1 Continue implementation of the Program that reduces the discharge of pollutants from construction sites. In each Annual Report, the permittee shall evaluate and report to determine if the existing practices meet the requirements of 40 C.F.R. § 122.26(d)(2)(iv)(A) and (D).

4.6.2 Continue the review and approval process of the sediment and erosion control plans under this program. Also, the permittee shall ensure that all construction projects impacting one acre or greater, or less than one acre when part of a larger common plan of development or sale equal to or larger than one acre, are not authorized until documentation is provided that they have received EPA NPDES Construction General Permit Coverage.

4.6.3 Continue to implement inspection and enforcement procedures, including but not limited to inspection of permitted construction sites that disturb more than 5,000 square feet of soil as follows:

1. First inspection prior to ground disturbing activities to review planned sediment and erosion control measures;
2. Second inspection to verify proper installation and maintenance of sediment and erosion control measures;

3. Third inspection to review planned installation and maintenance of stormwater management practices;
4. Fourth inspection to verify proper installation of stormwater management practices following final stabilization of the project site; and
5. Other inspections as necessary to ensure compliance with relevant standards and requirements.

4.6.4 When a violation of local erosion and sediment control ordinances occurs, the permittee shall follow existing enforcement procedures and practices using standardized reports as part of the inspection process to provide accurate record keeping of inspections of construction sites. The permittee shall use a listing of all violations and enforcement actions to assess the effectiveness of the Enforcement Program in each Annual Report.

4.6.5 Continue with educational measures for construction site operators (Section 4.9 of this permit) that consist, at a minimum, of providing guidance manuals and technical publications.

4.6.6 Report progress in developing and carrying out the above construction-related programs in each Annual Report required by Parts 6.2 herein, including: (i) an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act; (ii) an explanation as to how the implementation of these procedures, particularly with regard to District "waivers and exemptions", will meet the requirements of the Clean Water Act; and (iii) discussion of progress toward meeting TMDL and the District Watershed Implementation Plan deadlines.

4.7 Illicit Discharges and Improper Disposal.

4.7.1 The permittee shall continue to implement an ongoing program to detect illicit discharges, pursuant to the SWMP, and Part 4 of this permit, and to prevent improper disposal into the storm sewer system, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). Such program shall include, at a minimum the following:

a. An updated schedule of procedures and practices to prevent illicit discharges, as defined at 40 C.F.R. § 122.26(b)(2), and, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1), to detect and remove illicit discharges as defined herein;

b. An updated inventory (organized by watershed) of all outfalls that discharge through the MS4 including any changes to the identification and mapping of existing permitted outfalls. Such inventory shall include, but not be limited to, the name and address, and a description (such as SIC code) which best reflects the principal products or services provided by each facility which may discharge to the MS4;

c. Continue to implement an illicit connection detection and enforcement program to perform dry weather flow inspections in target areas;

d. Visual inspections of targeted areas;

e. Issuance of fines, tracking and reporting illicit discharges, and reporting progress on stopping targeted illicit discharges, and in appropriate cases, chemical testing immediately after discovery of an illicit discharge;

f. Enforcement procedures for illicit discharges set forth in Part 4 herein;

g. All necessary inspection, surveillance, and monitoring procedures to remedy and prevent illicit discharges. The permittee shall submit an inspection schedule, inspection criteria, documentation regarding protocols and parameters of field screening, and allocation of resources as a part of each Annual Report.

h. The permittee shall continue to implement procedures to prevent, contain, and respond to spills that may discharge into the MS4. The permittee shall provide for the training of appropriate personnel in spill prevention and response procedures.

i. The permittee shall report the accomplishments of this program in each Annual Report.

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

4.7.3 The permittee shall continue to implement the prohibition against the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. The permittee shall ensure the implementation of programs to collect used motor vehicle fluids (at a minimum oil and anti-freeze) for recycle, reuse, and proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. The permittee shall ensure that such programs are readily available within the District, and that they are publicized and promoted on a regular basis, pursuant to Public Education provisions in this permit at Part 4.9 herein.

4.7.4 The permittee shall continue to work with members of the Metropolitan Police Department to enhance illegal dumping enforcement.

4.7.5 The permittee shall implement the District's ban on coal tar pavement products, including conducting outreach and enforcement activities.

4.7.6 The permittee shall implement the Anacostia Clean Up and Protection Act of 2009, to ban the use of disposable non-recyclable plastic carryout bags and restrict the use on disposable carryout bags in certain food establishments.

4.8 Flood Control Projects

4.8.1 The permittee shall update the impervious surface analysis of floodplains six months after the approval of the revised Flood Insurance Rate Maps by the Federal Emergency Management Agency.

4.8.2 The permittee shall assess potential impacts on the water quality and the ability of the receiving water to support beneficial uses for all flood management projects. Evaluate the feasibility of retrofitting existing flood control devices to provide additional pollutant and volume removal from stormwater. Report results of such assessment, mapping program, and feasibility studies in the Annual Report (Part 6.2 herein).

4.8.3 The permittee shall review all development proposed in flood plain areas to ensure that the impacts on the water quality of receiving water bodies have been properly addressed. Information regarding impervious surface area located in the flood plains shall be used (in conjunction with other environmental indicators) as a planning tool. The permittee shall collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development beginning six months after the effective date of this permit. The permittee shall collect similar data for existing development in flood plain areas, in accordance with the mapping program and other activities designed to improve water quality. Critical unmapped areas shall be prioritized by the permittee with an emphasis on developed and developing acreage. Reports of this work shall be summarized in the Annual Report.

4.9 Public Education and Public Participation

The permittee shall continue to implement a public education program including but not limited to an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the permittee. The purpose of education is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Education initiatives may be developed locally or regionally.

4.9.1 Education and Outreach.

4.9.1.1 The permittee shall continue to implement its education and outreach program for the area served by the MS4 that was established during the previous permit cycle. The outreach program shall be designed to achieve measurable improvements in the target audience's understanding of stormwater pollution and steps they can take to reduce their impacts.

4.9.1.2 The permittee shall assess current education and outreach efforts and identify areas where additional outreach and education are needed. Audiences and subject areas to be considered include:

a. General public

1) General impacts of stormwater flows into surface waters
2) Impacts from impervious surfaces
3) Source control practices and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping, and rain water reuse.

4) A household hazardous waste educational and outreach program to control illicit discharges to the MS4 as required herein
5) Information and education on proper management and disposal of used oil, other automotive fluids, and household chemicals
6) Businesses, including home-based and mobile businesses
7) Management practices for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
8) Impacts of illicit discharges and how to report them including information for industries about stormwater permitting and pollution prevention plans and the requirement that they develop structural and non-structural control systems

b. Homeowners, landscapers and property managers

1) Use of low or no phosphorus fertilizers, alternatives to fertilizers, alternative landscaping requiring no fertilizers
2) Landscape designs to reduce runoff and pollutant loadings
3) Car washing alternatives with the objective of eliminating phosphorus detergent discharges
4) Yard care techniques that protect water quality
5) Management practices for use and storage of pesticides and fertilizers
6) Management practices for carpet cleaning and auto repair and maintenance
7) Runoff Reduction techniques, including site design, on-site retention, pervious paving, retention of forests and mature trees
8) Stormwater pond maintenance

c. Engineers, contractors, developers, review staff and land use planners

1) Technical standards for construction site sediment and erosion control
2) Runoff Reduction techniques, including site design, on-site reduction, pervious pavement, alternative parking lot design, retention of forests and mature trees
3) Stormwater treatment and flow control controls
4) Impacts of increased stormwater flows into receiving water bodies

4.9.2 Measurement of Impacts.

The permittee shall continue to measure the understanding and adoption of selected targeted behaviors among the targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.

4.9.3 Recordkeeping.

The permittee shall track and maintain records of public education and outreach activities.

4.9.4 Public Involvement and Participation.

The permittee shall continue to include ongoing opportunities for public involvement through advisory councils, watershed associations and/or committees, participation in developing updates to the stormwater fee system, stewardship programs, environmental activities or other similar activities. The permittee shall facilitate opportunities for direct action, educational, and volunteer programs such as riparian planting, volunteer monitoring programs, storm drain marking or stream clean up programs.

4.9.4.1 The permittee shall continue to create opportunities for the public to participate in the decision making processes involving the implementation and update of the permittee's SWMP. In particular, the permittee shall provide meaningful opportunity for the public to participate in the development of the permittee's Consolidated TMDL Implementation Plan. The permittee shall continue to implement its process for consideration of public comments on their SWMP.

4.9.4.2 The permittee shall continue to establish a method of routine communication to groups such as watershed associations and environmental organizations that are located in the same watershed(s) as the permittee, or organizations that conduct environmental stewardship projects located in the same watershed(s) or in close proximity to the permittee. This is to make these groups aware of opportunities for their direct involvement and assistance in stormwater activities that are in their watershed.

4.9.4.3 The permittee shall make all draft and approved MS4 documents required under this permit available to the public for comment. The current draft and approved SWMP and the MS4 annual reports deliverable documents required under this permit shall be posted on the permittee's website.

4.9.4.4 The permittee shall continue to develop public educational and participation materials in cooperation and coordination with other agencies and organizations in the District with similar responsibilities and objectives. Progress reports on public education shall be included in the Annual Report. An explanation shall be provided as to how this effort will reduce pollution loadings to meet the requirements of this permit.

4.9.4.5 The permittee shall periodically, and at least annually, update its website.

4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation

4.10.1 Anacostia River Watershed Trash TMDL Implementation

The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term.

Reductions must be made through a combination of the following approaches:

1. Direct removal from waterbodies, e.g., stream clean-ups, skimmers
2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks
3. Direct removal prior to entry to the MS4, e.g., street sweeping
4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection
5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees

At the end of the first year the permittee must submit the trash reduction calculation methodology with Annual Report to EPA for review and approval. The methodology should accurately account for trash prevention/removal methods beyond those already established when the TMDL was approved, which may mean crediting a percentage of certain approaches. The calculation methodology must be consistent with assumptions for weights and other characteristics of trash, as described in the 2010 Anacostia River Watershed Trash TMDL.

Annual reports must include the trash prevention/removal approaches utilized, as well as the overall total weight (in pounds) of trash captured for each type of approach.

The requirements of this Section, and related elements as appropriate, shall be included in the Consolidated TMDL Implementation Plan (Section 4.10.3).

4.10.2 Hickey Run TMDL Implementation

The permittee shall implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run as described in the updated Plan to satisfy the requirements of the oil and grease wasteload allocations for Hickey Run. If monitoring or other assessment determine it to be necessary, the permittee shall install or implement appropriate controls to address oil & grease in Hickey Run no later than the end of this permit term. As appropriate, any requirement of this Section not completed prior to finalization of the Consolidated TMDL Implementation Plan (Section 4.10.3) shall be included in that Plan.

4.10.3 Consolidated TMDL Implementation Plan

For all TMDL wasteload allocations assigned to District MS4 discharges, the permittee shall develop, public notice and submit to EPA for review and approval a consolidated TMDL Implementation Plan within 30 months of the effective date of this permit provision. This Plan shall include, at a minimum, the following TMDLs and any subsequent updates:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
3. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
4. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
5. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

6. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
7. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
8. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
9. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
10. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
11. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
12. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
13. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
14. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
15. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

This Plan shall place particular emphasis on the pollutants in Table 4, but shall also evaluate other pollutants of concern for which relevant WLAs exist. EPA will incorporate elements of the Consolidate TMDL Implementation Plan as enforceable permit provisions, including milestones and final dates for attainment of applicable WLAs. The permittee shall fully implement the Plan upon EPA approval. This Plan shall preempt any existing TMDL implementation plans for the relevant WLAs. To account for any new or revised TMDL established or approved by EPA with wasteload allocations assigned to District MS4 discharges, the permittee shall submit an updated Consolidated TMDL Implementation Plan annually, as necessary. Such updates will account for any actions taken in the 12-month period preceding the date 6 months before the revision is due. If necessary, the first such update will be due 18 months after the submittal of the initial Plan, with subsequent updates due on the anniversary of the submittal date.

The Plan shall include:

1. A specified schedule for attainment of WLAs that includes final attainment dates and, where applicable, interim milestones and numeric benchmarks.
    a. Numeric benchmarks will specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
    b. Interim milestones will be included where final attainment of applicable WLAs requires more than five years. Milestone intervals will be as frequent as possible but will in no case be greater than five (5) years.
2. Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
3. An associated narrative providing an explanation for the schedules and controls included in the Plan.

4. Unless and until an applicable TMDL is no longer in effect (e.g., withdrawn, reissued or the water delisted), the Plan must include the elements in 1-3 above for each TMDL as approved or established.
5. The current version of the Plan will be posted on the permittee's website.

4.10.4 Adjustments to TMDL Implementation Strategies

If evaluation data, as outlined in the monitoring strategy being developed per Part 5.1, indicate insufficient progress towards attaining any WLA covered in 4.10.1, 4.10.2 or 4.10.3, the permittee shall make the appropriate adjustements within six (6) months to address the insufficient progress and document those adjustments in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the incorporated milestones. Annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant, outlined in Part 4.10.

4.11 Additional Pollutant Sources

For any additional pollutant sources not addressed in sections 4.1 through 4.9, the permittee shall continue to compile pertinent information on known or potential pollution sources, including significant changes in:

1. land use activities,
2. population estimates,
3. runoff characteristics,
4. major structural controls,
5. landfills,
6. publicly owned lands, and
7. industries impacting the MS4.

For purposes of this section, “significant changes” are changes that have the potential to revise, enhance, modify or otherwise affect the physical, legal, institutional, or administrative characteristics of the above-listed potential pollution sources. This information shall be submitted in each of the Annual Reports submitted to EPA pursuant to the procedures in Part 6.2 herein. For the Stormwater Model, analysis of data for these pollution sources shall be reported according to Part 7 herein.

The permittee shall implement controls to minimize and prevent discharges of pollutants from additional pollutant sources, including but not limited to Bacteria (*E. coli*), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash, to receiving waters. Controls shall be designed to prevent and restrict priority pollutants from coming into contact with stormwater, *e.g.*, restricting the use of lawn fertilizers rather than end-of-pipe treatment. These strategies shall include program priorities and a schedule of activities to address those priorities and an outline of which agencies will be responsible for implementing those strategies. The strategies used to reduce or eliminate these pollutants shall be documented in updates to the Stormwater Management Program Plan.

5. MONITORING AND ASSESSMENT OF CONTROLS

5.1 Revised monitoring program

5.1.1 Design of the Revised Monitoring Program

Within 30 months of the effective date of Part 4.10.3 of this permit the permittee shall develop, public notice and submit to EPA for review and approval a revised monitoring program. The permittee shall fully implement the program upon EPA approval. The revised monitoring program shall meet the following objectives:

1. Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of sampling stations must be adequate to ensure data are statistically significant and interpretable.

2. Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).

3. Include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

Table 4
Monitoring Parameters

Parameter
E. coli
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

4. All chemical analyses shall be performed in accordance with analytical methods approved under 40 C.F.R. Part 136. When there is not an approved analytical method, the applicant may use any suitable method as described in Section 5.7 herein, but must provide a description of the method.

5.1.2 Utilization of the Revised Monitoring Program

The permittee must use the information to evaluate the quality of the stormwater program and the health of the receiving waters at a minimum to include:

1. The permittee shall estimate annual cumulative pollutant loadings for pollutants listed in Table 4. Pollutant loadings and, as appropriate, event mean concentrations, will be reported in DMRs and annual reports on TMDL implementation for pollutants listed in Table 4 in discharges from the monitoring stations in Table 5.

2. The permittee shall perform the following activities at least once during the permit term, but no later than the fourth year of this permit:

   a. Identify and prioritize additional efforts needed to address water quality exceedances, and receiving stream impairments and threats;

   b. Identify water quality improvements or degradation

Upon approval of the Revised Monitoring Program by EPA Region III, or 2 years from the effective date of this permit, whichever comes first, the permittee shall begin implementation of the Revised Monitoring Program.

5.2 Interim Monitoring

Until such time as EPA has approved the Revised Monitoring Program, the permittee shall implement the following monitoring program:

5.2.1 Wet Weather Discharge Monitoring

The permittee shall monitor for the parameters identified in Table 4 herein, at the locations listed in Table 5 herein. Monitoring frequency for chemical/physical parameters shall be taken by at least three times per year at a minimum. This does not include a geomorphologic assessment and/or physical habitat assessment. The permittee shall conduct sampling as provided in 40 C.F.R. § 122.21(g)(7).

The permittee shall monitor and provide an annual Discharge Monitoring Report for the period of interim monitoring.

TABLE 5
Monitoring Stations

A. Anacostia River Sub Watershed Monitoring Sites
1. Gallatin Street & 14th Street N.E. across from the intersection of 14th St. and Gallatin St. in an outfall (MS-2)
2. Anacostia High School/Anacostia Recreation Center – Corner of 17th St and Minnesota Ave SE
B. Rock Creek Subwatershed Monitoring Sites
1. Walter Reed -- Fort Stevens Drive -- 16th Street and Fort Stevens Road, N.W. at an outfall (MS-6)
2. Soapstone Creek -- Connecticut Avenue and Ablemarle Street N.W. at an outfall (MS-5)
C. Potomac River Subwatershed Monitoring Sites
1. Battery Kemble Creek-49th and Hawthorne Streets, N.W. at an outfall (MS-4)
2. Oxon Run-Mississippi Avenue and 15th Street, S.E. into Oxon Run via an outfall (MS-1)

The permittee may revise this list of sites in accordance with its revised monitoring program in Section 5.1 herein. Otherwise, changes to the above MS4 monitoring stations and/or sites for any reason shall be considered a major modification to the permit subject to the reopener clause.

During the interim monitoring period for the pollutants listed in Table 4, demonstration of compliance will be calculated using the procedures identified in the SWMP, the approved Anacostia River TMDL Implementation Plan, and/or other appropriate modeling tools and data on management practices efficiencies. The annual report will provide all monitoring data, and a brief synthesis of whether the data indicate that relevant wasteload allocations and other relevant targets are being achieved.

5.2.2 Storm Event Data

In addition to the parameters listed above, the permittee shall continue to maintain records of the date and duration (in hours) of the storm events sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration (in hours) between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and a calculated flow estimate of the total volume (in gallons) and nature of the discharge sampled.

5.2.3 Sample Type, Collection, and Analysis

The following requirements apply only to samples collected for Part 5.2.1, Representative Monitoring.

1. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one sample shall be taken for pollutants listed in Table 4 including temperature, DO, pH and specific conductivity. For all parameters, data shall be reported for the entire event of the discharge pursuant to 40 C.F.R. § 122.26(d)(2)(iii).

2. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge, with each aliquot being separated by a minimum period of fifteen minutes.

3. Analysis and collection of samples shall be done in accordance with the most recent EPA approved laboratory methods and procedures specified at 40 C.F.R. Part 136 and its subsequent amendments.

5.2.4 Sampling Waiver

When a discharger is unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event.

Adverse climatic conditions which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.).

5.3 Dry Weather Monitoring

5.3.1 Dry Weather Screening Program

The permittee shall continue with ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4 pursuant to the District SWMP. The permittee shall perform the following: (1) continue to screen known problem sewersheds within the District based on past screening activities; (2) continue to inventory all MS4 outfalls in the District and inspect all outfalls by the end of the permit term; and (3) ensure that the dry weather screening program has addressed all watersheds within the permit term. The screening shall be

sufficient to estimate the frequency and volume of dry weather discharges and their environmental impact.

5.3.2 Screening Procedures

Screening may be developed and/or modified based on experience gained during actual field screening activities. The permittee shall establish a protocol which requires screening to ensure that such procedures are occurring, but such protocol need not conform to the procedures published at 40 C.F.R. § 122.26(d)(1)(iv)(D). The permittee shall describe the protocol actually used in each Annual Report with a justification for its use. The procedures described in the SWMP shall be used as guidance.

5.3.3 Follow-up on Dry Weather Screening Results

The permittee shall continue to implement its enforcement program for locating and ensuring elimination of all suspected sources of illicit connections and improper disposal identified during dry weather screening activities. The permittee shall report the results of such implementation in each Annual Report.

5.4. Area and/or Source Identification Program

The permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.

5.5 Flow Measurements

The permittee shall continue to select and use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device.

5.6 Monitoring and Analysis Procedures

5.6.1 Monitoring must be conducted according to laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments, unless other test procedures have been specified in the permit.

5.6.2 The permittee is authorized to use a more current or sensitive (i.e., lower) detection method than the one identified in 40 C.F.R. Part 136 exists for a particular parameter, including but not limited to PCBs (Method 1668B) and mercury (Method 1631E). If used, the permittee shall report using the more current and/or more sensitive method for compliance reporting and monitoring purposes.

5.6.3 EPA reserves the right to modify the permit in order to require a more sensitive method for measuring compliance with any pollutant contamination levels, consistent with 40 CFR, Part 136, should it become necessary.

5.7 Reporting of Monitoring Results

The permittee shall continue to report monitoring results annually in a Discharge Monitoring Report. If NetDMR (http://www.epa.gov/netdmr/) is unavailable to any of the following then the original and one copy of the Report are to be submitted at the following addresses:

NPDES Permits Branch
U.S. EPA Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, PA 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Monitoring results obtained during the previous year shall be summarized and reported in the Annual Report.

5.8 Additional Monitoring by the Permittee

If the permittee monitors (for the purposes of this permit) any pollutant more frequently than required by this permit, using laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual Discharge Monitoring Report. Such frequency shall also be indicated.

5.9 Retention of Monitoring Information

The permittee shall continue to retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation for a period of at least five(5) years from the date of the sample, measurement or report. This period may be extended by request of EPA at any time.

5.10 Record Content

Records of monitoring information shall include:

1. The date, exact location, time and methods of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

6. REPORTING REQUIREMENTS

The permittee shall comply with the reporting requirements identified in this section, including but not limited to the deliverables identified in Table 6 below.

TABLE 6
Reporting Requirements

Submittal	Deadline
Discharge Monitoring Report	Each year on the anniversary of the effective date of the permit (AEDOP)
Annual Report	Each year on the AEDOP.
MS4 Permit Application	Six months prior to the permit expiration date.

6.1 Discharge Monitoring Reports

The permittee shall provide discharge monitoring reports per Part 5.7 of this permit on the quality of stormwater discharges from the MS4 for all analytical chemical monitoring stipulated in Part 5 of this permit.

6.2 Annual Reporting

The permittee shall submit an Annual Report to EPA on or by the effective yearly date of the permit for the duration of the permitting cycle. At the same time the Annual Report it submitted to EPA it shall also be posted on the permittee's website at an easily accessible location. If the annual report is subsequently modified per EPA approval (part 6.2.3 of this permit) the updated report shall be posted on the permittee's website.

6.2.1 Annual Report.

The Annual Report shall follow the format of the permit as written, address each permit requirement, and also include the following elements:

a. A review of the status of program implementation and compliance (or non-compliance) with all provisions and schedules of compliance contained in this

permit, including documentation as to compliance with performance standards and other provisions and deliverables contained in Section 4 herein;

b. A review of monitoring data and any trends in estimated cumulative annual pollutant loadings, including TMDL WLAs and TMDL implementation activities;

c. An assessment of the effectiveness of controls established by the SWMP;

d. An assessment of the projected cost of SWMP implementation for the upcoming year (or longer) and a description of the permittee's budget for existing stormwater programs, including: (i) an overview of the permittee's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs; and (iv) a demonstration of adequate fiscal capacity to meet the requirements of this permit, subject to the (a) the federal Anti-Deficiency Act, 31 U.S.C. §§ 1341, 1342, 1349, 1351, (b) the District of Columbia Anti-Deficiency Act, D.C. Official Code §§ 47-355.01-355.08 (2001), (c) D.C. Official Code § 47-105 (2001), and (d) D.C. Official Code § 1-204.46 (2006 Supp.), as the foregoing statutes may be amended from time to time;

e. A summary describing the number and nature of enforcement actions, inspections, and public education programs and installation of control systems;

f. Identification of water quality improvements or degradation through application of a measurable performance standard as stated throughout this permit;

g. Results of storm and water quality modeling and its use in planning installation of control systems and maintenance and other activities;

h. An assessment of any SWMP modifications needed to meet the requirements of this permit;

i. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 C.F.R. § 122.26(d)(2)(iv) and (v);

j. Methodology to assess the effects of the Stormwater Management Program (SWMP);

k. Annual expenditures and budget for the year following each annual report;

l. A summary of commitments for the next year and evaluation of the commitments from the previous year;

m. A summary of the monitoring data for stormwater and ambient sampling that is collected in the previous year and the plan, including identification of monitoring locations, to collect additional data for the next year;

n. The amount of impervious cover within the District, and within the three major watersheds in the District (Anacostia, Potomac and Rock Creek);

o. The percentage of effective impervious cover reduced annually, including but not limited to the number and square footage of green roofs installed in the District, including the square footage of drainage managed by practices that meet the performance standard in 4.1.1; and

p. An analysis of the work to be performed in the next successive year, including performance measures for those tasks. In the following year, progress with those performance measures shall be part of the Annual Report. The basis for each of the performance standards, which will be used as tools for evaluating environmental results and determining the success of each MS4 activity, shall be described incorporating an integrated program approach that considers all programs and projects which have a direct as well as an indirect affect on

stormwater management quantity and quality within the District. The report shall also provide an update of the fiscal analysis for each year of the permit as required by 40 C.F.R. § 122.26(d)(2)(vi).

6.2.2 Annual Report Meeting

Within 12 months of the effective date of this permit the permittee shall convene an annual report meeting with EPA to present annual progress and plans for the following year. In conjunction with this meeting the annual written report may consist of presentation materials summarizing all required elements of the annual report rather than a lengthy written report, as long as all required elements are included. Following this first annual reporting meeting EPA and the permittee shall determine if the meeting and associated presentation materials constitute an effective reporting mechanism. With the agreement of both EPA and the permittee the annual reporting meeting and the use of summarized presentation materials in lieu of a lengthy written report may be extended for the remainder of the permit term.

6.2.3 Annual Report Revisions

Each Annual Report may be revised with written approval by EPA. The revised Report will become effective after its approval.

6.2.4 Signature and Certification

The permittee shall sign and certify the Annual Report in accordance with 40 C.F.R §122.22(b), and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been appraised of the content of such submissions. The permittee shall provide a description of the procedure used to meet the above requirement.

6.2.5 EPA Approval

In reviewing any submittal identified in Table 1 or 6, EPA may approve or disapprove each submittal. If EPA disapproves any submittal, EPA shall provide comments to the permittee. The permittee shall address such comments in writing within thirty (30) days of receipt of the disapproval from EPA. If EPA determines that the permittee has not adequately addressed the disapproval/comments, EPA may revise that submittal or portions of that submittal. Such revision by EPA is effective thirty (30) days from receipt by the permittee. Once approved by EPA, or in the event of EPA disapproval, as revised by EPA, each submission shall be an enforceable element of this permit.

6.3 MS4 Permit Application

The permittee develop a permit Application based on the findings presented in each of the Annual SWMP Reports submitted during the permitting cycle to be submitted six months prior to the expiration date of the permit. The permit application shall define the next iterative set of objectives for the program and provide an analysis to demonstrate that these objectives will be achieved in the subsequent permit term.

7. STORMWATER MODEL

The permittee shall continue to update and report all progress made in developing a Stormwater Model and Geographical Information System (GIS) to EPA on an annual basis as an attachment to each Annual Report required herein.

On an annual basis, the permittee shall report on pollutant load reductions throughout the area covered by this permit using the statistical model developed by DDOE or other appropriate model. In the annual update, the permittee shall include, at a minimum, other applicable components which are not only limited to those activities identified in Section 6 herein, but which are necessary to demonstrate the effectiveness of the permittee's Stormwater Management Program toward implementing a sustainable strategy for reducing stormwater pollution runoff to the impaired waters of the District of Columbia.

Assess performance of stormwater on-site retention projects through monitoring, modeling and/or estimating storm retention capacity to determine the volume of stormwater removed from the MS4 in a typical year of rainfall as a result of implementing stormwater controls. This provision does not require all practices to be individually monitored, only that a reasonable evaluation strategy must provide estimates of overall volume reductions by sewershed.

8. STANDARD PERMIT CONDITIONS FOR NPDES PERMITS

8.1 Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and may result in an enforcement action; permit termination, revocation and reissuance, or modification; and denial of a permit renewal application.

8.2 Inspection and Entry

The permittee shall allow EPA, or an authorized representative, and/or the permittee’s contractor(s)/subcontractor(s), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises at reasonable times where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be maintained under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), processes, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

8.3 Civil and Criminal Penalties for Violations of Permit Conditions

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

The Clean Water Act provides that any person who violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act, or any permit condition or limitation implementing such section, or any requirement imposed in an approved pretreatment program and any person who violates any Order issued by EPA under Section 301(a) of the Act, shall be subject to a civil penalty not to exceed $25,000 per day for each violation, Pursuant to the Civil Monetary Penalty Inflation Adjustment Rule, EPA has raised the statutory maximum penalty for such violations to $37,500 per day for each such violation. 74 Fed. Reg. 626 (Jan. 7, 2009). The Clean Water Act also provides for an action for appropriate relief including a permanent or temporary injunction.

Any person who negligently violates Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, any permit condition or limitation implementation any such section, shall be punished by a criminal fine of not less than $5,000 nor more than $50,000 per day of such violation, or by imprisonment for not more than 3 years, or by both. Any person who knowingly violates any permit condition or limitation implementing Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000, or by imprisonment of not more than 15 years, or by both.

8.4 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

In the event that the permittee or permitting authority determines that discharges are causing or contributing to a violation of applicable WQS, the permittee shall take corrective action to eliminate the WQS exceedance or correct the issues and/or problems by requiring the party or parties responsible for the alleged violation(s) comply with Part I.C.1 (Limitations to Coverage) of this permit. The methods used to correct the WQS exceedances shall be documented in subsequent annual reports and in revisions to the Stormwater Management Program Plan.

8.5 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this permit;

2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

4. Information newly acquired by the Agency, including but not limited to the results of the studies, planning, or monitoring described and/or required by this permit;

5. Material and substantial facility modifications, additions, and/or expansions;

6. Any anticipated change in the facility discharge, including any new significant industrial discharge or changes in the quantity or quality of existing industrial discharges that will result in new or increased discharges of pollutants; or

7. A determination that the permitted activity endangers human health or the environment and that it can only be regulated to acceptable levels by permit modification or termination.

The effluent limitations expressed in this permit are based on compliance with the District of Columbia's water quality standards in accordance with the Clean Water Act. In the event of a revision of the District of Columbia's water quality standards, this document may be modified by EPA to reflect this revision.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. When a permit is modified, only conditions subject to modification are reopened.

8.6 Retention of Records

The permittee shall continue to retain records of all documents pertinent to this permit not otherwise required herein, including but not limited copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the expiration date of this permit. This period may be extended by request of EPA at any time.

8.7 Signatory Requirements

All Discharge Monitoring Reports, plans, annual reports, certifications or information either submitted to EPA or that this permit requires be maintained by the permittee shall be signed by either a principal executive officer or ranking elected official, or a duly authorized representative of that person. A person is a duly authorized representative only if: (i) the authorization is made in writing by a person described above and submitted to EPA; and (ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for an agency. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new notice satisfying the requirements of this paragraph must be submitted to EPA prior or together with any reports, information, or applications to be signed by an authorized representative.

8.8 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, 33 U.S.C. § 1321.

8.9 District Laws, Regulations and Ordinances

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable District law, regulation or ordinance identified in the SWMP. In the case of "exemptions and waivers" under District law, regulation or ordinance, Federal law and regulation shall be controlling.

8.10 Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

8.11 Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

8.12 Transfer of Permit

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if:

1. The current permittee notifies the EPA, in writing of the proposed transfer at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

3. The EPA does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

8.13 Construction Authorization

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

8.14 Historic Preservation

During the design stage of any project by the Government of the District of Columbia within the scope of this permit that may include ground disturbance, new and existing or retrofit construction, or demolition of a structure, the permittee shall notify the Historic Preservation liaison and provide the liaison planning documents for the proposed undertaking. The documents shall include project location; scope of work or conditions; photograph of the area/areas to be impacted and the methods and techniques for accomplishing the undertaking. Depending on the complexity of the undertaking, sketches, plans and specifications shall also be submitted for review. The documentation will enable the liaison to assess the applicability of compliance procedures associated with Section 106 of the National Historic Preservation Act. Among the steps in the process are included:

1. The determination of the presence or absence of significant historic properties (architectural, historic or prehistoric). This can include the evaluation of standing structures and the determination of the need for an archaeological survey of the project area.

2. The evaluation of these properties in terms of their eligibility for nomination to the National Register of Historic Places.

3. The determination of the effect that the proposed undertaking will have on these properties.

4. The development of mitigating measures in conjunction with any anticipated effects.

All such evaluations and determinations will be presented to the permittee for its concurrence.

If an alternate Historic Preservation procedure is approved by EPA in writing during the term of this permit, the alternate procedure will become effective after its approval.

8.15 Endangered Species

The U.S. Fish and Wildlife Service (FWS) has indicated that Hay's Spring Amphipod, a Federally listed endangered species, occurs at several locations in the District of Columbia. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the endangered shortnose sturgeon occurs in the Potomac River drainage and may occur within the District of Columbia. The FWS and NOAA Fisheries indicate that at the present time there is no evidence that the ongoing stormwater discharges covered by this permit are adversely affecting these Federally-listed species. Stormwater discharges, construction, or any other activity that adversely affects a Federally-listed endangered or threatened species are not authorized under the terms and conditions of this permit.

The monitoring required by this permit will allow further evaluation of potential effects on these threatened and endangered species once monitoring data has been collected and analyzed. EPA requires that the permittee submit to NOAA Fisheries, at the same time it submits to EPA, the Annual Outfall Discharge Monitoring Report of the monitoring data which will be used by EPA and NOAA Fisheries to further assess effects on endangered or threatened species. If this data indicates that it is appropriate, requirements of this NPDES permit may be modified to prevent adverse impacts on habitats of endangered and threatened species.

The above-referenced Report of monitoring data is required under this permit to be sent on an annual basis to:

The United States Environmental Protection Agency
Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

8.16 Toxic Pollutants

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act, 33 U.S.C. § 1317(a), for a toxic pollutant which is present in the discharge and such standard or prohibition

is more stringent than any limitation for such pollutant in this permit, the permittee shall comply with such standard or prohibition even if the permit has not yet been modified to comply with the requirement.

8.17 Bypass

8.17.1 Bypass not exceeding limitations. In accordance with 40 C.F.R. § 122.41(m), the permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation.

8.17.2 Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice at least ten days before the date of the bypass. See 40 C.F.R. § 122.41(m)(3)(i).

2. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required by 40 C.F.R. § 122.41(l)6) (24-hour notice). See 40 C.F.R. § 122.41(m)(3)(ii).

8.17.3 Prohibition of bypass. See 40 C.F.R. § 122.41(m)(4).

1. Bypass is prohibited, and EPA may take enforcement action against the permittee for bypass, unless:

    a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage as defined herein;

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

    c. The permittee submitted notices as required herein.

2. EPA may approve an anticipated bypass, after considering its adverse effects, if EPA determines that it will meet the three conditions listed above.

8.18 Upset

Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of 40 C.F.R. § 122.41(n) are met.

8.19 Reopener Clause for Permits

The permit shall be modified or revoked and reissued, including but not limited to, for any of the following reasons:

1. To incorporate any applicable effluent standard or limitation issued or approved under Sections 301, 304, or 307 of the Clean Water Act, and any other applicable provision, such as provided for in the Chesapeake Bay Agreements based on water quality considerations, and if the effluent standard or limitation so issued or approved:

   a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. Controls any pollutant not limited in the permit. The permit, as modified or reissued under this paragraph, shall also contain any other requirements of the Act then applicable; or

2. To incorporate additional controls that are necessary to ensure that the permit effluent limits are consistent with any applicable TMDL WLA allocated to the discharge of pollutants from the MS4 or to incorporate milestones and schedules of a TMDL Implementation Plan; or

3. As specified in 40 C.F.R. §§ 122.44(c), 122.62, 122.63, 122.64, and 124.5.

8.20 Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, it must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. EPA may grant permission to submit an application less than 180 days in advance but no longer than the permit expiration date. In the event that a timely and complete reapplication has been submitted and EPA is unable through no fault of he permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

9. PERMIT DEFINITIONS

Terms that are not defined herein shall have the meaning accorded them under section 502 of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, or its implementing regulations, 40 C.F.R. Part 122.

"Annual Report" refers to the consolidated Annual Report that the permittee is required to submit annually.

"Benchmark" as used in this permit is a quantifiable goal or target to be used to assess progress toward "milestones" (see separate definition) and WLAs, such as a numeric goal for BMP implementation. If a benchmark is not met, the permittee should take appropriate corrective action to improve progress toward meeting milestones or other objectives. Benchmarks are intended as an adaptive management aid and generally are not considered to be enforceable.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. See 40 C.F.R. § 122.41(m)(1)(i).

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. §§ 1251 *et seq.*

"Development" is the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet, including new development projects and redevelopment projects. For purposes of Parts 4.1.1 through 4.1.4 of the permit the requirements apply to discharges from sites for which design or construction commenced after 18 months from the effective date of this permit or as required by District of Columbia law, whichever is sooner. The permittee may exempt development projects receiving site plan approval prior to this date from these requirements.

"Director" means the Regional Administrator of USEPA Region 3 or an authorized representative.

"Discharge" for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

"Discharge Monitoring Report", "DMR" or "Outfall Discharge Monitoring Report" includes the monitoring and assessment of controls identified in Section 5 herein.

"EPA" means USEPA Region 3.

"Green Roof" is a low-maintenance roof system that stores rainwater where the water is taken up by plants and/or transpired into the air.

"Green Technology Practices" means stormwater management practices that are used to mimic pre-development site hydrology by using site design techniques that retain stormwater on-site through infiltration, evapotranspiration, harvest and use.

"Guidance" means assistance in achieving a particular outcome or objective.

"Illicit connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities, pursuant to 40 C.F.R. § 122.26(b)(2).

“Impaired Water” (or “Water Quality Impaired Water” or “Water Quality Limited Segment”): A water is impaired for purposes of this permit if it has been identified by the District or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards (these waters are called “water quality limited segments” under 40 C.F.R. 30.2(j)). Impaired waters include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established.

"Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit (i.e., an area where wastes are applied onto or incorporated into the soil surface [excluding manure spreading operations] for treatment or disposal), surface impoundment, injection well, or waste pile.

"Large or Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either: (1) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 C.F.R. Part 122); or (2) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 C.F.R. Part 122); or (3) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"Milestone" as used in this permit is an interim step toward attainment of a WLA that upon incorporation into the permit will become an enforceable limit or requirement to be achieved by a stated date. A milestone should be expressed in numeric terms, i.e. as a volume reduction, pollutant load, specified implementation action or set of actions or other objective metric, when possible and appropriate.

"MS4" refers to either a Large or Medium Municipal Separate Storm Sewer System.

"Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (1) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes; (2) Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); (3) not a combined sewer; and (4) not part of a Publicly-Owned Treatment Works as defined at 40 C.F.R. § 122.2.

“Offset” means a unit of measurement, either used as monetary or non-monetary compensation, as a substitute or replacement for mitigation of a stormwater control practice that has been determined to be impracticable to implement.

“Performance measure” means for purposes of this permit, a minimum set of criteria for evaluating progress toward meeting a standard of performance.

“Performance standard” means for purposes of this permit, a cumulative measure or provision for attainment of an outcome or objective.

"Permittee" refers to the Government of the District of Columbia.

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

“Pollutant of concern” means a pollutant in an MS4 discharge that may cause or contribute to the violation of a water quality criterion for that pollutant downstream from the discharge.

“Pre-Development Condition” means the combination of runoff, infiltration and evapotranspiration rates, volumes, durations and temperatures that typically existed on the site with natural soils and vegetation before human-induced land disturbance occurred. In the context of requirements in this permit the environmental objective is a stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.

“Retention” means the use of soils, vegetation, water harvesting and other mechanisms and practices to retain a target volume of stormwater on a given site through the functions of: pore space and surface ponding storage; infiltration; reuse, and/or evapotranspiration.

“Retrofit” means improvement in a previously developed area that results in reduced stormwater discharge volumes and pollutant loads and/or improvement in water quality over current conditions.

“Stormwater” means the flow of surface water which results from, and which occurs immediately following, a rainfall event, snow melt runoff, and surface runoff and drainage.

“Stormwater management” means (1) for quantitative control, a system of vegetative or structural measures, or both, which reduces the increased volume and rate of surface runoff caused by man-made changes to the land; and (2) for qualitative control, a system of vegetative, structural, and other measures which reduce or eliminate pollutants which might otherwise be carried by surface runoff.

"SWMP" is an acronym for Stormwater Management Program. For purposes of this permit, the term includes all stormwater activities described in the District's SWMP Plan updated February 19, 2009, or any subsequent update, and all other strategies, plans, documents, reports, studies, agreements and related correspondences developed and used pursuant to the requirements of this permit.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 C.F.R. § 122.41(m)(1)(ii).

"Total Maximum Daily Load (TMDL) Units" means for purposes of this permit, the sum of individual waste load allocations (WLAs) and natural background. Unless specifically permitted otherwise in an EPA-approved TMDL report covered under the permit, TMDLs are expressed in terms of mass per time, toxicity or other appropriate measure such as pollutant pounds of a total average annual load.

"TMDL Implementation Plan" means for purposes of this permit, a plan and subsequent revisions/updates to that plan that are designed to demonstrate how to achieve compliance with applicable waste load allocations as set forth in the permit requirements described in Section 4.10.3.

"Stormwater Management Program (SWMP)" is a modified and improved SWMP based on the existing SWMP and on information in each of the Annual Reports/Discharge Monitoring Reports. The purpose of the SWMP is to describe the list of activities that need to be done to meet the requirements of the Clean Water Act, an explanation as to why these activities will meet the Clean Water Act requirements, and a schedule for those activities.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond reasonable control. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 C.F.R. § 122.41(n)(1).

"Waste pile" means any non-containerized accumulation of solid, nonflowing waste.

"Water quality standards" refers to the District of Columbia's Surface and Ground Water Quality Standards codified at Code of District of Columbia Regulations §§ 21-1100 *et seq.*, which are effective on the date of issuance of the permit and any subsequent amendments which may be adopted during the life of this permit.

"Waters of the United States" is defined at 40 C.F.R. § 122.2.

ATTACHMENT 7

Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

NPDES General Permit No. NMR04A000

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "Act"), except as provided in Part I.A.5 of this permit, operators of municipal separate storm sewer systems located in the area specified in Part I.A.1 are authorized to discharge pollutants to waters of the United States in accordance with the conditions and requirements set forth herein.

Only operators of municipal separate storm sewer systems in the general permit area who submit a Notice of Intent and a storm water management program document in accordance with Part I.A.6 of this permit are authorized to discharge storm water under this general permit.

This is a renewal NPDES permit issued for these portions of the small municipal separate storm sewer systems covered under the NPDES permit No NMR040000 and NMR04000I and the large municipal separate storm sewer systems covered under the NPDES permit No NMS000101.

This permit is issued on and shall become effective on the date of publication in the Federal Register. DEC 2 2 2014

This permit and the authorization to discharge shall expire at, midnight, December 19, 2019.

Signed by

William K. Honker, P.E.
Director
Water Quality Protection Division

Prepared by

Nelly Smith
Environmental Engineer
NPDES Permits and TMDLs Branch

MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

Table of Contents

PART I. INDIVIDUAL PERMIT CONDITIONS

A. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1. **Permit Area**. This permit is available for MS4 operators within the Middle Rio Grande Sub-Watersheds described in Appendix A. This permit may authorize stormwater discharges to waters of the United States from MS4s within the Middle Rio Grande Watershed provided the MS4:

   a. Is located fully or partially within the corporate boundary of the City of Albuquerque;

   b. Is located fully or partially within the Albuquerque urbanized area as determined by the 2000 and 2010 Decennial Census. Maps of Census 2010 urbanized areas are available at: http://water.epa.gov/polwaste/npdes/stormwater/Urbanized-Area-Maps-for-NPDES-MS4-Phase-II-Stormwater-Permits.cfm;

   c. Is designated as a regulated MS4 pursuant to 40 CFR 122.32; or

   d. This permit may also authorize an operator of a MS4 covered by this permit for discharges from areas of a regulated small MS4 located outside an Urbanized Areas or areas designated by the Director provided the permittee complies with all permit conditions in all areas covered under the permit.

2. **Potentially Eligible MS4s.** MS4s located within the following jurisdictions and other areas, including any designated by the Director, are potentially eligible for authorization under this permit:

   - City of Albuquerque
   - AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Authority)
   - UNM (University of New Mexico)
   - NMDOT (New Mexico Department of Transportation District 3)
   - Bernalillo County
   - Sandoval County
   - Village of Corrales
   - City of Rio Rancho
   - Los Ranchos de Albuquerque
   - KAFB (Kirtland Air Force Base)
   - Town of Bernalillo
   - EXPO (State Fairgrounds/Expo NM)
   - SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority)
   - ESCAFCA (Eastern Sandoval County Arroyo Flood Control Authority)
   - Sandia Laboratories, Department of Energy (DOE)
   - Pueblo of Sandia
   - Pueblo of Isleta
   -Pueblo of Santa Ana

3. **Eligibility**. To be eligible for this permit, the operator of the MS4 must provide:

   a. Public Participation: Prior submitting the Notice of Intent (NOI), the operator of the MS4 must follow the local notice and comment to procedures at Part I.D.5.h.(i).

   b. National Historic Preservation Act (NHPA) Eligibility Provisions

      In order to be eligible for coverage under this permit, the applicant must be in compliance with the National Historic Preservation Act. Discharges may be authorized under this permit only if:

(i) Criterion A: storm water discharges, allowable non-storm water discharges, and discharge-related activities do not affect a property that is listed or is eligible for listing on the National Register of Historic Places as maintained by the Secretary of the Interior; or

(ii) Criterion B: the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) (or equivalent tribal authority) that outlines all measures the MS4 operator will undertake to mitigate or prevent adverse effect to the historic property.

Appendix C of this permit provides procedures and references to assist with determining permit eligibility concerning this provision. You must document and incorporate the results of your eligibility determination in your SWMP.

The permittee shall also comply with the requirements in Part IV.U.

4. **Authorized Non-Stormwater Discharges**. The following non-stormwater discharges need not be prohibited unless determined by the permittees, U.S. Environmental Protection Agency (EPA), or New Mexico Environment Department (NMED) to be significant contributors of pollutants to the municipal separate storm sewer system (MS4). Any such discharge that is identified as significant contributor pollutants to the MS4, or as causing or contributing to a water quality standards violation, must be addressed as an illicit discharge under the illicit discharge and improper disposal practices established pursuant to Part I.D.5.e of this permit. For all of the discharges listed below, not treated as illicit discharges, the permittee must document the reason these discharges are not expected to be significant contributors of pollutants to the MS4. This documentation may be based on either the nature of the discharge or any pollution prevention/treatment requirements placed on such discharges by the permittee.

- potable water sources, including routine water line flushing;
- lawn, landscape, and other irrigation waters provided all pesticides, herbicides and fertilizers have been applied in accordance with approved manufacturing labeling and any applicable permits for discharges associated with pesticide, herbicide and fertilizer application;
- diverted stream flows;
- rising ground waters;
- uncontaminated groundwater infiltration (as defined at 40 CFR §35.2005 (20));
- uncontaminated pumped groundwater;
- foundation and footing drains;
- air conditioning or compressor condensate;
- springs;
- water from crawl space pumps;
- individual residential car washing;
- flows from riparian habitats and wetlands;
- dechlorinated swimming pool discharges;
- street wash waters that do not contain detergents and where no un-remediated spills or leaks of toxic or hazardous materials have occurred;
- discharges or flows from fire fighting activities (does not include discharges from fire fighting training activities); and,
- other similar occasional incidental non-stormwater discharges (e.g. non-commercial or charity car washes, etc.)

5. **Limitations of Coverage**. This permit does not authorize:

a. Non-Storm Water*:* Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:

(i) In compliance with a separate NPDES permit; or

(ii) Exempt from permitting under the NPDES program; or

(iii) Determined not to be a substantial contributor of pollutants to waters of the United States. See Part I.A.4.

b. Industrial Storm Water*:* Storm water discharges associated with industrial activity as defined in 40 CFR §122.26(b)(14)(i)-(ix) and (xi).

c. Construction Storm Water*:* Storm water discharges associated with construction activity as defined in 40 CFR §122.26(b)(14)(x) or 40 CFR §122.26(b)(15).

d. Currently Permitted Discharges*:* Storm water discharges currently covered under another NPDES permit.

e. Discharges Compromising Water Quality*:* Discharges that EPA, prior to authorization under this permit, determines will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable water quality standard. Where such a determination is made prior to authorization, EPA may notify you that an individual permit application is necessary in accordance with Part IV.M. However, EPA may authorize your coverage under this permit after you have included appropriate controls and implementation procedures in your SWMP designed to bring your discharge into compliance with water quality standards.

f. Discharges Inconsistent with a TMDL*:* You are not eligible for coverage under this permit for discharges of pollutants of concern to waters for which there is an applicable total maximum daily load (TMDL) established or approved by EPA unless you incorporate into your SWMP measures or controls that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, you must incorporate documentation into your SWMP supporting a determination of permit eligibility with regard to waters that have an EPA-established or approved TMDL. If a wasteload allocation has been established that would apply to your discharge, you must comply with the requirements established in Part I.C.2.b.(i). Where an EPA-approved or established TMDL has not specified a wasteload allocation applicable to municipal storm water discharges, but has not specifically excluded these discharges, adherence to a SWMP that meets the requirements in Part I.C.2.b.(ii) of this general permit will be presumed to be consistent with the requirements of the TMDL. If the EPA-approved or established TMDL specifically precludes such discharges, the operator is not eligible for coverage under this general permit.

6. **Authorization Under This General Permit**

a. Obtaining Permit Coverage.

(i) An MS4 operator seeking authorization to discharge under this general permit must submit electronically a complete notice of intent (NOI) to the e-mail address provided in Part I.B.3 (see suggested EPA R6 MS4 NOI format located in EPA website at http://epa.gov/region6/water/npdes/sw/ms4/index.htm), in accordance with the deadlines in Part I.B.1 of this permit. The NOI must include the information and attachments required by Parts I.B.2, Part I.A.3, Part I.D.5.h.(i), and I.A.5.f of this permit. By submitting a signed NOI, the applicant certifies that all eligibility criteria for permit coverage have been met. If EPA notifies a discharger (either directly, by public notice, or by making information available on the Internet) of other NOI options that become available at a later date, such as electronic submission of forms or information, the MS4 operator may take advantage of those options to satisfy the NOI submittal requirements.

(ii) If an operator changes or a new operator is added after an NOI has been submitted, the operator must submit a new or revised NOI to EPA.

(iii) An MS4 operator who submits a complete NOI and meets the eligibility requirements in Part I of this permit is authorized to discharge storm water from the MS4 under the terms and conditions of this general permit only upon written notification by the Director. After review of the NOI and any public comments on the NOI, EPA may condition permit coverage on correcting any deficiencies or on including a schedule to respond to any public comments. (See also Parts I.A.3 and Part I.D.5.h.(i).)

(iv) If EPA notifies the MS4 operator of deficiencies or inadequacies in any portion of the NOI (including the SWMP), the MS4 operator must correct the deficient or inadequate portions and submit a written statement to EPA certifying that appropriate changes have been made. The certification must be submitted within the time-frame specified by EPA and must specify how the NOI has been amended to address the identified concerns.

(v) The NOI must be signed and certified in accordance with Parts IV.H.1 and 4. Signature for the NOI, which effectively takes the place of an individual permit application, may not be delegated to a lower level under Part IV.H.2

b. Terminating Coverage.

(i) A permittee may terminate coverage under this general permit by submitting a notice of termination (NOT). Authorization to discharge terminates at midnight on the day the NOT is post-marked for delivery to EPA.

(ii) A permittee must submit an NOT to EPA within 30 days after the permittee:

(a) Ceases discharging storm water from the MS4,

(b) Ceases operations at the MS4, or

(c) Transfers ownership of or responsibility for the facility to another operator.

(iii) The NOT will consist of a letter to EPA and must include the following information:

(a) Name, mailing address, and location of the MS4 for which the notification is submitted;

(b) The name, address and telephone number of the operator addressed by the NOT;

(c) The NPDES permit number for the MS4;

(d) An indication of whether another operator has assumed responsibility for the MS4, the discharger has ceased operations at the MS4, or the storm water discharges have been eliminated; and

(e) The following certification:

I certify under penalty of law that all storm water discharges from the identified MS4 that are authorized by an NPDES general permit have been eliminated, or that I am no longer the operator of the MS4, or that I have ceased operations at the MS4. I understand that by submitting this Notice of Termination I am no longer authorized to discharge storm water under this general permit, and that discharging pollutants in storm water to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by an NPDES permit. I also understand that the submission of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

(f) NOTs, signed in accordance with Part IV.H.1 of this permit, must be sent to the e-mail address in Part I.B.3. Electronic submittal of the NOT required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

B. NOTICE OF INTENT REQUIREMENTS

1. **Deadlines for Notification**.

a. Designations: Small MS4s automatically designated under 40 CFR 122.32(a)(1), large MS4s located within the corporate boundary of the COA including the COA and former co-permittees under the NPDES permit No

NMS000101, and MS4s designated under 40 CFR 122.26(a)(1)(v), 40 CFR 122.26(a)(9)(i)(C) or (D), or 40 CFR 122.32(a)(2) are required to submit individual NOIs by the dates listed in Table 1. Any MS4 designated as needing a permit after issuance of this permit will be given an individualized deadline for NOI submittal by the Director at the time of designation.

In lieu of creating duplicate program elements for each individual permittee, implementation of the SWMP, as required in Part I.D, may be achieved through participation with other permittees, public agencies, or private entities in cooperative efforts to satisfy the requirements of Part D. For these programs with cooperative elements, the permittee may submit individual NOIs as established in Table 1. See also "Permittees with Cooperative Elements in their SWMP " under Part.I.B.4 and "Shared Responsibilities and Cooperative Programs" under Part I.D.3.

Table 1 Deadlines to Submit NOI

Permittee Class Type	**NOI Deadlines**
Class A: MS4s within the Cooperate Boundary of the COA including former co-permittees under the NPDES permit No NMS000101	90 days from effective date of the permit or 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class B: MS4s designated under 40 CFR 122.32(a)(1). Based on 2000 Decennial Census Map	90 days from effective date of the permit or 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class C: MS4s designated under 40 CFR 122.26(a)(1)(v), 40 CFR 122.26(a)(9)(i)(C) or (D), or 40 CFR 122.32(a)(2) or MS4s newly designated under 122.32(a)(1) based on 2010 Decennial Census Map	180 days from effective date of the permit or notice of designation, unless the notice of designation grants a later date or; 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class D: MS4s within Indian Country Lands designed under 40 CFR 122.26(a)(1)(v), 122.26(a)(9)(i)(C) or (D), 122.32(a)(1), or 122.32(a)(2)	180 days from effective date of the permit or notice of designation, unless the notice of designation grants a later date or; 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.

See Appendix A for list of potential permittees in the Middle Rio Grande Watershed

b. New Operators. For new operators of all or a part of an already permitted MS4 (due to change on operator or expansion of the MS4) who will take over implementation of the existing SWMP covering those areas, the NOI must be submitted 30 days prior to taking over operational control of the MS4. Existing permittees who are expanding coverage of their MS4 area (e.g., city annexes part of unincorporated county MS4) are not required to submit a new NOI, but must comply with Part I.D.6.d.

c. Submitting a Late NOI. MS4s not able to meet the NOI deadline in Table I and Part I.B.1.b due to delays in determining eligibility should notify EPA of the circumstance and progress to date at the address in Part I.B.3 and then proceed with a late NOI. MS4 operators are not prohibited from submitting an NOI after the dates provided in Table 1 and Part I.B.1.b. If a late NOI is submitted, the authorization is only for discharges that occur after permit coverage is effective. The permitting authority reserves the right to take appropriate enforcement actions for any unpermitted discharges.

d. End of Administrative Continued Coverage under Previous Permit. Administrative continuance is triggered by a timely reapplication. Discharges submitting an NOI for coverage under this permit are considered to have met

the timely reapplication requirement if NOI is submitted by the deadlines included in Table 1 of Part I.B.1. For MS4s previously covered under either NMS000101 or NMR040000, continued coverage under those permits ends: a) the day after the applicable deadline for submittal of an NOI if a complete NOI has not been submitted or b) upon notice of authorization under this permit if a complete and timely NOI is submitted.

2. **Contents of Notice of Intent**. An MS4 operator eligible for coverage under this general permit must submit an NOI to discharge under this general permit. The NOI will consist of a letter to EPA containing the following information (see suggested EPA R6 MS4 NOI Format located in EPA website at http://www.epa.gov/region6/water/npdes/sw/ms4/index.htm) and must be signed in accordance with Part IV.H of this permit:

   a. The legal name of the MS4 operator and the name of the urbanized area and core municipality (or Indian reservation/pueblo) in which the operator's MS4 is located;

   b. The full facility mailing address and telephone number;

   c. The name and phone number of the person or persons responsible for overall coordination of the SWMP;

   d. An attached location map showing the boundaries of the MS4 under the applicant's jurisdiction. The map must include streets or other demarcations so that the exact boundaries can be located;

   e. The area of land served by the applicant's MS4 (in square miles);

   f. The latitude and longitude of the approximate center of the MS4;

   g. The name(s) of the waters of the United States that receive discharges from the system.

   h. If the applicant is participating in a cooperative program element or is relying on another entity to satisfy one or more permit obligations (see Part I.D.3), identify the entity(ies) and the element(s) the entity(ies) will be implementing;

   i. Information on each of the storm water minimum control measures in Part I.D.5 of this permit and how the SWMP will reduce pollutants in discharges to the Maximum Extent Practicable. For each minimum control measure, include the following:

      (i) Description of the best management practices (BMPs) that will be implemented;

      (ii) Measurable goals for each BMP; and

      (iii) Time frames (i.e., month and year) for implementing each BMP;

   j. Based on the requirements of Part I.A.3.b describe how the eligibility criteria for historic properties have been met;

   k. Indicate whether or not the MS4 discharges to a receiving water for which EPA has approved or developed a TMDL. If so, describe how the eligibility requirements of Part I.A.5.f and Part I.C.2 have been met.

      Note: If an individual permittee or a group of permittees seeks an alternative sub-measureable goal for TMDL controls under Part I.C.2.b.(i).(c).B, the permittee or a group of permittees must submit a preliminary proposal with the NOI. This proposal shall include, but is not limited to, the elements included in Appendix B under Section B.2.

   l. Signature and certification by an appropriate official (see Part IV.H). The NOI must include the certification statement from Part IV.H.4.

3. **Where to Submit.** The MS4 operator must submit the signed NOI to EPA via e-mail at R6_MS4Permits@epa.gov (note: there is an underscore between R6 and MS4) and NMED to the address provided in Part III.D.4. See also Part III.D.4 to determine if a copy must be **p**rovided to a Tribal agency.

   The following MS4 operators: AMAFCA, Sandoval County, Village of Corrales, City of Rio Rancho, Town of Bernalillo, SSCAFCA, and ESCAFCA must submit the signed NOI to the Pueblo of Sandia to the address provided in Part III.D.4.

   Note: See suggested EPA R6 MS4 NOI Format located in EPA website at http://www.epa.gov/region6/water/npdes/sw/ms4/index.htm. A complete copy of the signed NOI should be maintained on site. Electronic submittal of the documents required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

4. **Permittees with Cooperative Elements in their SWMP.** Any MS4 that meets the requirements of Part I.A of this general permit may choose to partner with one or more other regulated MS4 to develop and implement a SWMP or SWMP element. The partnering MS4s must submit separate NOIs and have their own SWMP, which may incorporate jointly developed program elements. If responsibilities are being shared as provided in Part I.D.3 of this permit, the SWMP must describe which permittees are responsible for implementing which aspects of each of the minimum measures. All MS4 permittees are subject to the provisions in Part I.D.6.

   Each individual MS4 in a joint agreement implementing a permit condition will be independently assessed for compliance with the terms of the joint agreement. Compliance with that individual MS4s obligations under the joint agreement will be deemed compliance with that permit condition. Should one or more individual MS4s fail to comply with the joint agreement, causing the joint agreement program to fail to meet the requirements of the permit, the obligation of all parties to the joint agreement is to develop within 30 days and implement within 90 days an alternative program to satisfy the terms of the permit.

C. SPECIAL CONDITIONS

1. **Compliance with Water Quality Standards**. Pursuant to Clean Water Act §402(p)(3)(B)(iii) and 40 CFR §122.44(d)(1), this permit includes provisions to ensure that discharges from the permittee's MS4 do not cause or contribute to exceedances of applicable surface water quality standards, in addition to requirements to control discharges to the maximum extent practicable (MEP) set forth in Part I.D. Permittees shall address stormwater management through development of the SWMP that shall include the following elements and specific requirements included in Part VI.

   a. Permittee's discharges shall not cause or contribute to an exceedance of surface water quality standards (including numeric and narrative water quality criteria) applicable to the receiving waters. In determining whether the SWMP is effective in meeting this requirement or if enhancements to the plan are needed, the permittee shall consider available monitoring data, visual assessment, and site inspection reports.

   b. Applicable surface water quality standards for discharges from the permittees' MS4 are those that are approved by EPA and any other subsequent modifications approved by EPA upon the effective date of this permit found at New Mexico Administrative Code §20.6.4. Discharges from various portions of the MS4 also flow downstream into waters with Pueblo of Isleta and Pueblo of Sandia Water Quality Standards;

   c. The permittee shall notify EPA and the Pueblo of Isleta in writing as soon as practical but not later than thirty (30) calendar days following each Pueblo of Isleta water quality standard exceedance at an in-stream sampling location. In the event that EPA determines that a discharge from the MS4 causes or contributes to an exceedance of applicable surface water quality standards and notifies the permittee of such an exceedance, the permittee shall, within sixty (60) days of notification, submit to EPA, NMED, Pueblo of Isleta (upon request) and Pueblo of Sandia (upon request), a report that describes controls that are currently being implemented and additional controls that will be implemented to prevent pollutants sufficient to ensure that the discharge will no longer cause or contribute to an exceedance of applicable surface water quality standards. The permittee shall implement such additional controls upon notification by EPA and shall incorporate such measures into their SWMP as described in Part I.D of this permit. NMED or the affected Tribe may provide information

documenting exceedances of applicable water quality standards caused or contributed to by the discharges authorized by this permit to EPA Region 6 and request EPA take action under this paragraph.

d. Phase I Dissolved Oxygen Program (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit): Within one year from effective date of the permit , the permittees shall revise the May 1, 2012 Strategy to continue taking measures to address concerns regarding discharges to the Rio Grande by implementing controls to eliminate conditions that cause or contribute to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. The permittees shall:

(i) Continue identifying structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;

(ii) Continue implementing controls, and updating/revising as necessary, to eliminate structural elements or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the United States;

(iii) To verify the remedial action in the North Diversion Channel Embayment, the COA and AMAFCA shall continue sampling for DO and temperature until the data indicate the discharge does not exceed applicable dissolved oxygen water quality standards in waters of the United States; and

(iv) Submit a revised strategy to FWS for consultation and EPA for approval from a year of effective date of the permit and progress reports with the subsequent Annual Reports. Progress reports to include:

(a) Summary of data.

(b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. Including summary of findings of the assessment required in Part I.C.1.d.(i).

(c) Conclusions drawn, including support for any determinations.

(d) Activities undertaken to eliminate MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States.

(e) Account of stakeholder involvement.

e. PCBs (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit and Bernalillo County): The permittee shall address concerns regarding PCBs in channel drainage areas specified in Part I.C.1.e.(vi) by developing or continue updating/revising and implementing a strategy to identify and eliminate controllable sources of PCBs that cause or contribute to exceedances of applicable water quality standards in waters of the United States. Bernalillo County shall submit the proposed PCB strategy to EPA within two (2) years from the effective date of the permit and submit a progress report with the third and with subsequent Annual Reports. COA and AMAFCA shall submit a progress report with the first and with the subsequent Annual Reports. The progress reports shall include:

(i) Summary of data.

(ii) Findings regarding controllable sources of PCBs in the channel drainages area specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the United States via the discharge of municipal stormwater.

(iii) Conclusions drawn, including supporting information for any determinations.

(iv) Activities undertaken to eliminate controllable sources of PCBs in the drainage areas specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the United States via the discharge of municipal stormwater including proposed activities that extend beyond the five (5) year permit term.

(v) Account of stakeholder involvement in the process.

(vi) Channel Drainage Areas: The PCB strategy required in Part I.C.1.e is only applicable to:

COA and AMAFCA Channel Drainage Areas:
- San Jose Drain
- North Diversion Channel

Bernalillo County Channel Drainage Areas:
- Adobe Acres Drain
- Alameda Outfall Channel
- Paseo del Norte Outfall Channel
- Sanchez Farm Drainage Area

A cooperative strategy to address PCBs in the COA, AMAFCA and Bernalillo County's drainage areas may be developed between Bernalillo County, AMAFCA, and the COA. If a cooperative strategy is developed, the cooperative strategy shall be submitted to EPA within three (3) years from the effective date of the permit and submit a progress report with the fourth and with subsequent Annual Reports,

Note: COA and AMAFCA must continue implementing the existing PCB strategy until a new Cooperative PCB Strategy is submitted to EPA.

f. Temperature (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit): The permittees must continue assessing the potential effect of stormwater discharges in the Rio Grande by collecting and evaluating additional data. If the data indicates there is a potential of stormwater discharges contributing to exceedances of applicable temperature water quality standards in waters of the United States, within thirty (30) days such as findings, the permittees must develop and implement a strategy to eliminate conditions that cause or contribute to these exceedances. The strategy must include:

(i) Identify structural controls, post construction design standards, or pollutants contributing to raised temperatures in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;

(ii) Develop and implement controls to eliminate structural controls, post construction design standards, or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for temperature in waters of the United States; and

(iii) Provide a progress report with the first and with subsequent Annual Reports. The progress reports shall include:

(a) Summary of data.

(b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States.

(c) Conclusions drawn, including supporting information for any determinations.

(d) Activities undertaken to reduce MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States.

(e) Accounting of stakeholder involvement.

2. **Discharges to Impaired Waters with and without approved TMDLs**. Impaired waters are those that have been identified pursuant to Section 303(d) of the Clean Water Act as not meeting applicable surface water quality standards. This may include both waters with EPA-approved Total Maximum Daily Loads (TMDLs) and those for which a TMDL has not yet been approved. For the purposes of this permit, the conditions for discharges to impaired waters also extend to controlling pollutants in MS4 discharges to tributaries to the listed impaired waters in the Middle Rio Grande watershed boundary identified in Appendix A.

   a. Discharges of pollutant(s) of concern to impaired water bodies for which there is an EPA approved total maximum daily load (TMDL) are not eligible for this general permit unless they are consistent with the approved TMDL. A water body is considered impaired for the purposes of this permit if it has been identified, pursuant to the latest EPA approved CWA §303(d) list, as not meeting New Mexico Surface Water Quality Standards.

   b. The permittee shall control the discharges of pollutant(s) of concern to impaired waters and waters with approved TMDLs as provided in sections (i) and (ii) below, and shall assess the success in controlling those pollutants.

      (i) Discharges to Water Quality Impaired Water Bodies with an Approved TMDL
      If the permittee discharges to an impaired water body with an approved TMDL (see Appendix B), where stormwater has the potential to cause or contribute to the impairment, the permittee shall include in the SWMP controls targeting the pollutant(s) of concern along with any additional or modified controls required in the TMDL and this section. The SWMP and required annual reports must include information on implementing any focused controls required to reduce the pollutant(s) of concern as described below:

         (a) Targeted Controls: The SWMP submitted with the first annual report must include a detailed description of all targeted controls to be implemented, such as identifying areas of focused effort or implementing additional Best Management Practices (BMPs) that will be implemented to reduce the pollutant(s) of concern in the impaired waters.

         (b) Measurable Goals: For each targeted control, the SWMP must include a measurable goal and an implementation schedule describing BMPs to be implemented during each year of the permit term. Where the impairment is for bacteria, the permittee must, at minimum comply with the activites and schedules described in Table 1.a of Part I.C.2.(iii).

         (c) Identification of Measurable Goal: The SWMP must identify a measurable goal for the pollutant(s) of concern. The value of the measurable goal must be based on one of the following options:

            A. If the permittee is subject to a TMDL that identifies an aggregate Waste Load Allocation (WLA) for all or a class of permitted MS4 stormwater sources, then the SWMP may identify such WLA as the measurable goal. Where an aggregate WLA measurable goal is used, all affected MS4 operators are jointly responsible for progress in meeting the measurable goal and shall (jointly or individually) develop a monitoring/assessment plan. This program element may be coordinated with the monitoring required in Part III.A.

            B. Alternatively, if multiple permittees are discharging into the same impaired water body with an approved TMDL (which has an aggregate WLA for all permitted stormwater MS4s), the MS4s may combine or share efforts, in consultation with/and the approval of NMED, to determine an alternative sub-measurable goal derived from the WLA for the pollutant(s) of concern (e.g., bacteria) for their respective MS4. The SWMP must clearly define this alternative approach and must describe how the sub-measurable goals would cumulatively support the aggregate WLA. Where an aggregate WLA measurable goal has been broken into sub-measurable goals for individual MS4s, each permittee is only responsible for progress in meeting its WLA sub-measurable goal.

C. If the permittee is subject to an individual WLA specifically assigned to that permittee, the measurable goal must be the assigned WLA. Where WLAs have been individually assigned, or where the permittee is the only regulated MS4 within the urbanized area that is discharging into the impaired watershed with an approved TMDL, the permittee is only responsible for progress in meeting its WLA measurable goal.

(d) Annual Report: The annual report must include an analysis of how the selected BMPs have been effective in contributing to achieving the measurable goal and shallll include graphic representation of pollutant trends, along with computations of annual percent reductions achieved from the baseline loads and comparisons with the target loads.

(e) Impairment for Bacteria: If the pollutant of concern is bacteria, the permittee shall include focused BMPs addressing the five areas below, as applicable, in the SWMP and implement as appropriate. If a TMDL Implementation Plan (a plan created by the State or a Tribe) is available, the permittee may refer to the TMDL Implementation Plan for appropriate BMPs. The SWMP and annual report must include justification for not implementing a particular BMP included in the TMDL Implementation Plan. The permittee may not exclude BMPs associated with the minimum control measures required under 40 CFR §122.34 from their list of proposed BMPs. The BMPs shall, as appropriate, address the following:

A. Sanitary Sewer Systems
- Make improvements to sanitary sewers;
- Address lift station inadequacies;
- Identify and implement operation and maintenance procedures;
- Improve reporting of violations; and
- Strengthen controls designed to prevent over flows

B. On-site Sewage Facilities (for entities with appropriate jurisdiction)
- Identify and address failing systems; and
- Address inadequate maintenance of On-Site Sewage Facilities (OSSFs).

C. Illicit Discharges and Dumping
- Place additional effort to reduce waste sources of bacteria; for example, from septic systems, grease traps, and grit traps.

D. Animal Sources
- Expand existing management programs to identify and target animal sources such as zoos, pet waste, and horse stables.

E. Residential Education: Increase focus to educate residents on:
- Bacteria discharging from a residential site either during runoff events or directly;
- Fats, oils, and grease clogging sanitary sewer lines and resulting overflows;
- Decorative ponds; and
- Pet waste.

(f) Monitoring or Assessment of Progress: The permittee shall monitor or assess progress in achieving measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A. The permittee may use the following methods either individually or in conjunction to evaluate progress towards the measurable goal and improvements in water quality as follows:

A. Evaluating Program Implementation Measures: The permittee may evaluate and report progress towards the measurable goal by describing the activities and BMPs implemented, by identifying the appropriateness of the identified BMPs, and by evaluating the success of implementing the measurable goals. The permittee may assess progress by using program implementation indicators

such as: (1) number of sources identified or eliminated; (2) decrease in number of illegal dumping; (3) increase in illegal dumping reporting; (4) number of educational opportunities conducted; (5) reductions in SSOs; or, 6) increase in illegal discharge detection through dry screening, etc.; and

B. Assessing Improvements in Water Quality: The permittee may assess improvements in water quality by using available data for segment and assessment units of water bodies from other reliable sources, or by proposing and justifying a different approach such as collecting additional instream or outfall monitoring data, etc. Data may be acquired from NMED, local river authorities, partnerships, and/or other local efforts as appropriate. Progress towards achieving the measurable goal shall be reported in the annual report. Annual reports shall report the measurable goal and the year(s) during the permit term that the MS4 conducted additional sampling or other assessment activities.

(g) Observing no Progress towards the Measurable Goal: If, by the end of the third year from the effective date of the permit, the permittee observes no progress toward the measurable goal either from program implementation or water quality assessments, the permittee shall identify alternative focused BMPs that address new or increased efforts towards the measurable goal. As appropriate, the MS4 may develop a new approach to identify the most significant sources of the pollutant(s) of concern and shall develop alternative focused BMPs (this may also include information that identifies issues beyond the MS4's control). These revised BMPs must be included in the SWMP and subsequent annual reports.

Where the permittee originally used a measurable goal based on an aggregated WLA, the permittee may combine or share efforts with other MS4s discharging to the same impaired stream segment to determine an alternative sub-measurable goal for the pollutant(s) of concern for their respective MS4s, as described in Part I.C.2.b.(i).(c).B above. Permittees must document, in their SWMP for the next permit term, the proposed schedule for the development and subsequent adoption of alternative sub-measurable goals for the pollutant(s) of concern for their respective MS4s and associated assessment of progress in meeting those individual goals.

(ii) Discharges Directly to Water Quality Impaired Water Bodies without an Approved TMDL:
The permittee shall also determine whether the permitted discharge is directly to one or more water quality impaired water bodies where a TMDL has not yet been approved by NMED and EPA. If the permittee discharges directly into an impaired water body without an approved TMDL, the permittee shall perform the following activities:

(a) Discharging a Pollutant of Concern: The permittee shall:

A. Determine whether the MS4 may be a source of the pollutant(s) of concern by referring to the CWA §303(d) list and then determining if discharges from the MS4 would be likely to contain the pollutant(s) of concern at levels of concern. The evaluation of CWA §303(d) list parameters should be carried out based on an analysis of existing data (e.g., Illicit Discharge and Improper Disposal Program) conducted within the permittee's jurisdiction.

B. Ensure that the SWMP includes focused BMPs, along with corresponding measurable goals, that the permittee will implement, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. (note: Only applicable if the permittee determines that the MS4 may discharge the pollutant(s) of concern to an impaired water body without a TMDL. The SWMP submitted with the first annual report must include a detailed description of proposed controls to be implemented along with corresponding measurable goals.

C. Amend the SWMP to include any additional BMPs to address the pollutant(s) of concern.

(b) Impairment for Bacteria: Where the impairment is for bacteria, the permittee shall identify potential significant sources and develop and implement targeted BMPs to control bacteria from those sources (see Part I.C.2.b.(i).(e).A through E.. The permittee must, at minimum comply with the activities and

schedules described in Table 1.a of Part I.C.2.(iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

Note: Probable pollutant sources identified by permittees should be submitted to NMED on the following form: ftp://ftp.nmenv.state.nm.us/www/swqb/Surveys/PublicProbableSourceIDSurvey.pdf

(c) Impairment for Nutrients: Where the impairment is for nutrients (e.g., nitrogen or phosphorus), the permittee shall identify potential significant sources and develop and implement targeted BMPs to control nutrients from potential sources. The permittee must, at minimum comply with the activities and schedules described in Table 1.b of Part I.C,2, (iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

(d) Impairment for Dissolved Oxygen: See Endangered Species Act (ESA) Requirements in Part I.C.3. These program elements may be coordinated with the monitoring required in Part III.A**.**

(iii) Program Development and Implementation Schedules: Where the impairment is for nutrient constituent (e.g., nitrogen or phosphorus) or bacteria, the permittee must at minimum comply with the activities and schedules in Table 1.a and Table 1.b.

Table 1.a. Pre-TMDL Bacteria Program Development and Implementation Schedules

Activity	**Class Permittee**				
	A Phase I MS4s	**B Phase II MS4s (2000 Census)**	**C New Phase II MS4s (2010 Census **)**	**D MS4s within Indian Lands**	**Cooperative (*) Any Permittee with cooperative programs**
Identify potential significant sources of the pollutant of concern entering your MS4	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of bacteria in municipal storm water contributed by (if applicable) by pets, recreational and exhibition livestock, and zoos.	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit	Fourteen (14) months from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by areas within your MS4 served by on-site wastewater treatment systems.	Fourteen (14) months from effective date of permit	Fourteen (14) moths from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Review results to date from the Illicit Discharge Detection and Elimination program (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4	Fourteen (14) months from effective date of permit	Fourteen (14) months from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit	Eighteen (18) months from effective date of permit	Twenty (20) months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

Table 1.b. Pre-TMDL Nutrient Program Development and Implementation Schedules

Activity	**Class Permittee**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Identify potential significant sources of the pollutant of concern entering your MS4	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of pollutant of concern in municipal storm water contributed by residential and commercial use of fertilizer	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by fertilizer use at municipal operations (e.g., parks, roadways, municipal facilities)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by municipal and private golf courses within your jurisdiction	One (1) year from effective date of permit	One (1)year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the nutrient pollutant of concern and updates their measurable goals	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

These program elements may be coordinated with the monitoring required in Part III.A**.**

3. **Endangered Species Act (ESA) Requirements**. Consistent with U.S. FWS Biological Opinion dated August 21, 2014 to ensure actions required by this permit are not likely to jeopardize the continued existence of any currently listed as endangered or threatened species or adversely affect its critical habitat, permittees shall meet the following requirements and include them in the SWMP:

   a. Dissolved Oxygen Strategy in the Receiving Waters of the Rio Grande:

      (i) The permittees must identify (or continue identifying if previously covered under permit NMS000101) structural controls, natural or man-made topographical and geographical formations, MS4 operations, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. The permittees shall implement controls, and update/revise as necessary, to eliminate discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the Rio Grande. The permittees shall submit a summary of findings and a summary of activities undertaken under Part I.C.3.a.(i) with each Annual Report. The SWMP submitted with the first and fourth annual reports must include a detailed description of controls implemented (or/and proposed control to be implemented) along with corresponding measurable goals. (Applicable to all permittees).

      (ii) As required in Part I.C.1.d, the COA and AMAFCA shall revise the May 1, 2012 Strategy for dissolved oxygen to address dissolved oxygen at the North Diversion Channel Embayment and/or other MS4 locations. The permittees shall submit the revised strategy to FWS and EPA for approval within a year of permit issuance and progress reports with the subsequent Annual Reports (see also Part I.C.1.d.(iv)). The permittees shall **e**nsure that actions to reduce pollutants or remedial activities selected for the North Diversion Channel Embayment and its watershed are implemented such that there is a reduction in

frequency and magnitude of all low oxygen storm water discharge events that occur in the Embayment or downstream in the MRG as indicated in Table 1.c. Actions to meet the year 3 measurable goals must be taken within 2 years from the effective date of the permit. Actions to meet the year 5 measurable goals must be taken within 4 years from the effective date of the permit.

Table 1.c Measurable Goals of Anoxic and Hypoxia Levels Measured by Permit Year

Permit Year	*Anoxic Events*, max*	*Hypoxic Events**, max*
Year 1	*18*	*36*
Year 2	*18*	*36*
Year 3	*9*	*18*
Year 4	*9*	*18*
Year 5	*4*	*9*

Notes:

- * Anoxic Events: See Appendix G, for oxygen saturation and dissolved oxygen concentrations at various water temperatures and atmospheric pressures for the North Diversion Channel area that are considered anoxic and associated with the Rio Grande Silvery minnow lethality.
- ** Hypoxic Events: See Appendix for G, for oxygen saturation and dissolved oxygen concentrations at various water temperatures and atmospheric pressures for the North Diversion Channel area that are considered hypoxic and associated with the Rio Grande silvery minnow harassment.

(a) The revised strategy shall include:

A. A Monitoring Plan describing all procedures necessary to continue conducting continuous monitoring of dissolved oxygen (DO) and temperature in the North Diversion Channel Embayment and at one (1) location in the Rio Grande downstream of the mouth of the North Diversion Channel within the action area (e.g., Central Bridge). The monitoring plan to be developed will describe the methodology used to assure its quality, and will identify the means necessary to address any gaps that occur during monitoring, in a timely manner (that is, within 24 to 48 hours).

B. A Quality Assurance and Quality Control (QA/QC) Plan describing all standard operating procedures, quality assurance and quality control plans, maintenance, and implementation schedules that will assure timely and accurate collection and reporting of water temperature, dissolved oxygen, oxygen saturation, and flow. The QA/QC plan should include all procedures for estimating oxygen data when any oxygen monitoring equipment fail. Until a monitoring plan with quality assurance and quality control is submitted by EPA, any data, including any provisional or incomplete data from the most recent measurement period (e.g. if inoperative monitoring equipment for one day, use data from previous day) shall be used as substitutes for all values in the calculations for determinations of incidental takes. Given the nature of the data collected as surrogate for incidental take, all data, even provisional data (e.g., oxygen/water temperature data, associated metadata such as flows, date, times), shall be provided to the Service in a spreadsheet or database format within two weeks after formal request.

(b) Reporting: The COA and AMAFCA shall provide

A. An Annual Incidental Take Report to EPA and the Service that includes the following information: beginning and end date of any qualifying stormwater events, dissolved oxygen values and water temperature in the North Diversion Channel Embayment, dissolved oxygen values and water temperature at a downstream monitoring station in the MRG, flow rate in the North Diversion Channel, mean daily flow rate in the MRG, evaluation of oxygen and temperature data

as either anoxic or hypoxic using Table 2 of the BO, and estimate the number of silvery minnows taken based on Appendix A of the BO**.** Electronic copy of The Annual Incidental Take Report should be provided with the Annual Report required under Part III.B no later than December 1 for the proceeding calendar year.

B. A summary of data and findings with each Annual Report to EPA and the Service. All data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report. If additional data is requested by EPA or the Service, The COA and AMAFCA shall provide such as information within two weeks upon request,

The revised strategy required under Part I.C.3.a.(ii),the Annual Incidental Take Reports required under Part I.C.3.a.(ii).(b).A, and Annual Reports required under Part III.B can be submitted to FWS via e-mail nmesfo@fws.gov and joel_lusk@fws.gov, or by mail to the New Mexico Ecological Services field office, 2105 Osuna Road NE, Albuquerque, New Mexico 87113. (Only Applicable to the COA and AMAFCA

b. Sediment Pollutant Load Reduction Strategy (Applicable to all pemittees): The permittee must develop, implement, and evaluate a sediment pollutant load reduction strategy to assess and reduce pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters of the Rio Grande. The strategy must include the following elements:

(i) Sediment Assessment: The permittee must identify and investigate areas within its jurisdiction that may be contributing excessive levels (e.g., levels that may contribute to exceedance of applicable Water Quality Standards) of pollutants in sediments to the receiving waters of the Rio Grande as a result of stormwater discharges. The permittee must identify structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, and areas indicated as potential sources of sediments pollutants in the receiving waters of the Rio Grande. At the time of assessment, the permittee shall record any observed erosion of soil or sediment along ephemeral channels, arroyos, or stream banks, noting the scouring or sedimentation in streams. The assessment should be made using available data from federal, state, or local studies supplemented as necessary with collection of additional data. The permittee must describe, in the first annual report, all standard operating procedures, quality assurance plans to assure that accurate data are collected, summarized, evaluated and reported.

(ii) Estimate Baseline Loading: Based on the results of the sediment pollutants assessment required in Part I.C.3.b.(i) above the permittee must provide estimates of baseline total sediment loading and relative potential for contamination of those sediments by urban activities for drainage areas, sub-watersheds, Impervious Areas (IAs), and/or Directly Connected Impervious Area (DCIAs) draining directly to a surface waterbody or other feature used to convey waters of the United States. Sediment loads may be provided for targeted areas in the entire Middle Rio Grande Watershed (see Appendix A) using an individual or cooperative approach. Any data available and/or preliminary numeric modeling results may be used in estimating loads.

(iii) Targeted Controls: Include a detailed description of all proposed targeted controls and BMPs that will be implemented to reduce sediment pollutant loads calculated in PartI.C.3.b.(ii) above during the next ten (10) years of permit issuance. For each targeted control, the permittee must include interim measurable goals (e.g., interim sediment pollutant load reductions) and an implementation and maintenance schedule, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions. Any data available and/or preliminary numeric modeling results may be used in establishing the targeted controls, BMPs, and interim measurable goals. The permittee must prioritize pollutant load reduction efforts and target areas (e..g. drainage areas, sub-watersheds, IAs, DCIAs) that generate the highest annual average pollutant loads.

(iv) Monitoring and Interim Reporting: The permittee shall monitor or assess progress in achieving interim measurable goals and determining the effectiveness of BMPs, and shall include documentation of this

monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A.

(v) Progress Evaluation and Reporting: The permittee must assess the overall success of the Sediment Pollutant Load Reduction Strategy and document both direct and indirect measurements of program effectiveness in a Progress Report to be submitted with the fifth Annual Report. Data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of the BMPs and compliance with the ESA requirements specified in Part I.C.3.b. The Progress Report must include:

(a) A list of species likely to be within the action area:

(b) Type and number of structural BMPs installed;

(c) Evaluation of pollutant source reduction efforts;

(d) Any recommendation based on program evaluation;

(e) Description of how the interim sediment load reduction goals established in Part I.C.3.b.(iii) were achieved; and

(f) Future planning activities needed to achieve increase of sediment load reduction required in Part I.C.3.d.(iii).

(vi) Critical Habitat (Applicable to all permittees): Verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered or threatened species critical habitat by reviewing the activities and locations of stormwater BMP installation within the location of critical habitat of currently listed endangered or threatened species at the U.S. Fish and Wildlife service website http://criticalhabitat.fws.gov/crithab/.

D. STORMWATER MANAGEMENT PROGRAM (SWMP)

1. **General Requirements**. The permittee must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from a MS4 to the maximum extent practicable (MEP), to protect water quality (including that of downstream state or tribal waters), and to satisfy applicable surface water quality standards. The permittees shall continue implementation of existing SWMPs, and where necessary modify or revise existing elements and/or develop new elements to comply with all discharges from the MS4 authorized in Part I.A. The updated SWMP shall satisfy all requirements of this permit, and be implemented in accordance with Section 402(p)(3)(B) of the Clean Water Act (Act), and the Stormwater Regulations (40 CFR §122.26 and §122.34). This permit does not extend any compliance deadlines set forth in the previous permits (NMS000101 with effective date March 1, 2012 and permits No: NM NMR040000 and NMR04000I with effective date July 1, 2007).

   If a permittee is already in compliance with one or more requirements in this section because it is already subject to and complying with a related local, state, or federal requirement that is at least as stringent as this permit's requirement, the permittee may reference the relevant requirement as part of the SWMP and document why this permit's requirement has been satisfied. Where this permit has additional conditions that apply, above and beyond what is required by the related local, state, or federal requirement, the permittee is still responsible for complying with the~~se~~ additional conditions in this permit.

2. **Legal Authority**. Each permittee shall implement the legal authority granted by the State or Tribal Government to control discharges to and from those portions of the MS4 over which it has jurisdiction. The difference in each co-permittee's jurisdiction and legal authorities, especially with respect to third parties, may be taken into account in developing the scope of program elements and necessary agreements (i.e. Joint Powers Agreement, Memorandum of Agreement, Memorandum of Understanding, etc.). Permittees may use a combination of statute, ordinance, permit, contract, order, interagency or inter-jurisdictional agreement(s) with other permittees to:

a. Control the contribution of pollutants to the MS4 by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity (applicable only to MS4s located within the corporate boundary of the COA);

b. Control the discharge of stormwater and pollutants associated with land disturbance and development activities, both during the construction phase and after site stabilization has been achieved (post-construction), consistent with Part I.D.5.a and Part I.D.5.b;

c. Prohibit illicit discharges and sanitary sewer overflows to the MS4 and require removal of such discharges consistent with Part I.D.5.e;

d. Control the discharge of spills and prohibit the dumping or disposal of materials other than stormwater (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4;

e. Control, through interagency or inter-jurisdictional agreements among permittees, the contribution of pollutants from one (1) portion of the MS4 to another;

f. Require compliance with conditions in ordinances, permits, contracts and/or orders; and

g. Carry out all inspection, surveillance and monitoring procedures necessary to maintain compliance with permit conditions.

3. **Shared Responsibility and Cooperative Programs**.

a. The SWMP, in addition to any interagency or inter-jurisdictional agreement(s) among permittees, (e.g., the Joint Powers Agreement to be entered into by the permittees), shall clearly identify the roles and responsibilities of each permittee.

b. Implementation of the SWMP may be achieved through participation with other permittees, public agencies, or private entities in cooperative efforts to satisfy the requirements of Part I.D in lieu of creating duplicate program elements for each individual permittee.

(i) Implementation of one or more of the control measures may be shared with another entity, or the entity may fully take over the measure. A permittee may rely on another entity only if:

(a) the other entity, in fact, implements the control measure;

(b) the control measure, or component of that measure, is at least as stringent as the corresponding permit requirement; or,

(c) the other entity agrees to implement the control measure on the permittee's behalf. Written acceptance of this obligation is expected. The permittee must maintain this obligation as part of the SWMP description. If the other entity agrees to report on the minimum measure, the permittee must supply the other entity with the reporting requirements in Part III.D of this permit. The permittee remains responsible for compliance with the permit obligations if the other entity fails to implement the control measure component.

c. Each permittee shall provide adequate finance, staff, equipment, and support capabilities to fully implement its SWMP and all requirements of this permit.

4. **Measurable Goals**. The permittees shall control the discharge of pollutants from its MS4. The permittee shall implement the provisions set forth in Part I.D.5 below, and shall at a minimum incorporate into the SWMP the control measures listed in Part I.D.5 below. The SWMP shall include measurable goals, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions and the frequency of the action.

5. **Control Measures**.

a. Construction Site Stormwater Runoff Control.

(i) The permittee shall develop, revise, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. **Permittees previously covered under permit NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit**. (Note: Highway Departments and Flood Control Authorities may only apply the construction site stormwater management program to the permittees's own construction projects)

(ii) The program must include the development, implementation, and enforcement of, at a minimum:

(a) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal or local law;

(b) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices (both structural and non-structural);

(c) Requirements for construction site operators to control waste such as, but not limited to, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality (see EPA guidance at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=117);

(d) Procedures for site plan review which incorporate consideration of potential water quality impacts. The site plan review must be conducted prior to commencement of construction activities, and include a review of the site design, the planned operations at the construction site, the planned control measures during the construction phase (including the technical criteria for selection of the control measures), and the planned controls to be used to manage runoff created after the development;

(e) Procedures for receipt and consideration of information submitted by the public;

(f) Procedures for site inspection (during construction) and enforcement of control measures, including provisions to ensure proper construction, operation, maintenance, and repair. The procedures must clearly define who is responsible for site inspections; who has the authority to implement enforcement procedures; and the steps utilized to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and the quality of the receiving water. If a construction site operator fails to comply with procedures or policies established by the permittee, the permittee may request EPA enforcement assistance. The site inspection and enforcement procedures must describe sanctions and enforcement mechanism(s) for violations of permit requirements and penalties with detail regarding corrective action follow-up procedures, including enforcement escalation procedures for recalcitrant or repeat offenders. Possible sanctions include non-monetary penalties (such as stop work orders and/or permit denials for non-compliance), as well as monetary penalties such as fines and bonding requirements;

(g) Procedures to educate and train permittee personnel involved in the planning, review, permitting, and/or approval of construction site plans, inspections and enforcement. Education and training shall also be provided for developers, construction site operators, contractors and supporting personnel, including requiring a stormwater pollution prevention plan for construction sites within the permitee's jurisdiction;

(h) Procedures for keeping records of and tracking all regulated construction activities within the MS4, i.e. site reviews, inspections, inspection reports, warning letters and other enforcement documents. A

summary of the number and frequency of site reviews, inspections (including inspector's checklist for oversight of sediment and erosion controls and proper disposal of construction wastes) and enforcement activities that are conducted annually and cumulatively during the permit term shall be included in each annual report; and

(iii) Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres within the MS4 jurisdiction. Site inspections are to be followed by any necessary compliance or enforcement action. Follow-up inspections are to be conducted to ensure corrective maintenance has occurred; and, all projects must be inspected at completion for confirmation of final stabilization.

(iv) The permittee must coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area to ensure that the construction stormwater runoff controls eliminate erosion and maintain sediment on site. Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.

(v) The site plan review required in Part I.D.5.a.(ii)(d) must include an evaluation of opportunities for use of GI/LID/Sustainable practices and when the opportunity exists, encourage project proponents to incorporate such practices into the site design to mimic the pre-development hydrology of the previously undeveloped site. For purposes of this permit, pre-development hydrology shall be met according to Part I.D.5.b of this permit. (consistent with any limitations on that capture). Include a reporting requirement of the number of plans that had opportunities to implement these practices and how many incorporated these practices.

(vi) The permittee must include in the SWMP a description of the mechanism(s) that will be utilized to comply with each of the elements required in Part I.D.5.a.(i) throughout Part I.D.5.a.(v), including description of each individual BMP (both structural or non-structural) or source control measures and its corresponding measurable goal.

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report. The permittee must include in each annual report:

(a) A summary of the frequency of site reviews, inspections and enforcement activities that are conducted annually and cumulatively during the permit term.

(b) The number of plans that had the opportunity to implement GI/LID/Sustainable practices and how many incorporated the practices.

Program Flexibility Elements

(viii) The permittee may use storm water educational materials locally developed or provided by the EPA (refer to http://water.epa.gov/polwaste/npdes/swbmp/index.cfm, http://www.epa.gov/smartgrowth/parking.htm, http://www.epa.gov/smartgrowth/stormwater.htm), the NMED, environmental, public interest or trade organizations, and/or other MS4s.

(ix) The permittee may develop or update existing construction handbooks (e.g., the COA NPDES Stormwater Management Guidelines for Construction and Industrial Activities Handbook) to be consistent with promulgated construction and development effluent limitation guidelines.

(x) The construction site inspections required in Part I.D.5.a.(iii) may be carried out in conjunction with the permittee's building code inspections using a screening prioritization process.

Table 2. Construction Site Stormwater Runoff Control - Program Development and Implementation Schedules

Activity	Permittee Class				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of the permit
Develop requirements and procedures as required in Part I.D.5.a.(ii)(b) through in Part I.D.5.a.(ii)(h)	Ten (10) months from effective date of permit	Thirteen (13) months from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.5.a.(iii)	Ten (10) months from effective date of permit	Start Thirteen (13) months from effective date of permit and annually thereafter	Start Sixteen (16) months from effective date of permit and annually thereafter	Start eighteen (18) months from effective date of permit and thereafter	Start two (2) years from effective date of permit and thereafter
Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.a.(iv)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.5.a.(v)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.a.(vi) and in Part I.D.5.a.(vii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(x)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

b. Post-Construction Stormwater Management in New Development and Redevelopment

(i) The permittee must develop, revise, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit**. (Note: Highway Departments and Flood Control Authorities may only apply the post-construction stormwater management program to the permittee's own construction projects)

(ii) The program must include the development, implementation, and enforcement of, at a minimum:

(a) Strategies which include a combination of structural and/or non-structural best management practices (BMPs) to control pollutants in stormwater runoff.

(b) An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law. The ordinance or policy must:

Incorporate a stormwater quality design standard that manages on-site the 90th percentile storm event discharge volume associated with new development sites and 80th percentile storm event discharge volume associated with redevelopment sites, through stormwater controls that infiltrate, evapotranspire the discharge volume, except in instances where full compliance cannot be achieved, as provided in Part I.D.5.b.(v). The stormwater from rooftop discharge may be harvested and used on-site for non-commercial use. Any controls utilizing impoundments that are also used for flood control that are located in areas where the New Mexico Office of the State Engineer requirements at NMAC 19.26.2.15 (see also Section 72-5-32 NMSA) apply must drain within 96 hours unless the state engineer has issued a waiver to the owner of the impoundment.

Options to implement the site design standard include, but not limited to: management of the discharge volume achieved by canopy interception, soil amendments, rainfall harvesting, rain tanks and cisterns, engineered infiltration, extended filtration, dry swales, bioretention, roof top disconnections, permeable pavement, porous concrete, permeable pavers, reforestation, grass channels, green roofs and other appropriate techniques, and any combination of these practices, including implementation of other stormwater controls used to reduce pollutants in stormwater (e.g., a water quality facility).

Estimation of the 90th or 80th percentile storm event discharge volume is included in EPA Technical Report entitled "*Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, EPA Publication Number 832-R-14-007*". Permittees can also estimate:

Option A: a site specific 90th or 80th percentile storm event discharge volume using methodology specified in the referenced EPA Technical Report.

Option B: a site specific pre-development hydrology and associated storm event discharge volume using methodology specified in the referenced EPA technical Report.

(c) The permittee must ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with preconstruction BMP design; failure to construct BMPs

in accordance with the agreed upon pre-construction design; and ineffective post-construction operation and maintenance of BMPs;

(d) The permittee must ensure that the post-construction program requirements are constantly reviewed and revised as appropriate to incorporate improvements in control techniques;

(e) Procedure to develop and implement an educational program for project developers regarding designs to control water quality effects from stormwater, and a training program for plan review staff regarding stormwater standards, site design techniques and controls, including training regarding GI/LID/Sustainability practices. Training may be developed independently or obtained from outside resources, i.e. federal, state, or local experts;

(f) Procedures for site inspection and enforcement to ensure proper long-term operation, maintenance, and repair of stormwater management practices that are put into place as part of construction projects/activities. Procedure(s) shall include the requirement that as-built plans be submitted within ninety (90) days of completion of construction projects/activities that include controls designed to manage the stormwater associated with the completed site (post-construction stormwater management). Procedure(s) may include the use of dedicated funds or escrow accounts for development projects or the adoption by the permittee of all privately owned control measures. This may also include the development of maintenance contracts between the owner of the control measure and the permittee. The maintenance contract shall include verification of maintenance practices by the owner, allows the MS4 owner/operator to inspect the maintenance practices, and perform maintenance if inspections indicate neglect by the owner;

(g) Procedures to control the discharge of pollutants related to commercial application and distribution of pesticides, herbicides, and fertilizers where permittee(s) hold jurisdiction over lands not directly owned by that entity (e.g., incorporated city). The procedures must ensure that herbicides and pesticides applicators doing business within the permittee's jurisdiction have been properly trained and certified, are encouraged to use the least toxic products, and control use and application rates according to the applicable requirements; and

(h) Procedure or system to review and update, as necessary, the existing program to ensure that stormwater controls or management practices for new development and redevelopment projects/activities continue to meet the requirements and objectives of the permit.

(iii) The permittee must coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private new development and redevelopment projects/activities within the permit area to ensure the hydrology associated with new development and redevelopment sites mimic to the extent practicable the pre-development hydrology of the previously undeveloped site, except in instances where the pre-development hydrology requirement conflicts with applicable water rights appropriation requirements. For purposes of this permit, pre-development hydrology shall be met by capturing the 90^{th} percentile storm event runoff (consistent with any limitations on that capture) which under undeveloped natural conditions would be expected to infiltrate or evapotranspirate on-site and result in little, if any, off-site runoff. (Note: This permit does not prevent permittees from requiring additional controls for flood control purposes.) Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.

(iv) The permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices. The assessment shall include a list of the identified impediments, necessary regulation changes, and recommendations and proposed schedules to incorporate policies and standards to relevant documents and procedures to maximize infiltration, recharge, water harvesting, habitat improvement, and hydrological management of stormwater runoff as allowed under the applicable water rights appropriation requirements. The permittee must develop a report of the assessment findings, which is to be used to provide information to the permittee, of the regulation changes necessary to remove impediments and allow implementation of these practices.

(v) Alternative Compliance for Infeasibility due to Site Constrains:

(a) Infeasibility to manage the design standard volume specified in Part I(D)(5)(b)(ii)(b), or a portion of the design standard volume, onsite may result from site constraints including the following:

A. too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils;

B. soil instability as documented by a thorough geotechnical analysis;

C. a site use that is inconsistent with capture and reuse of storm water;

D. other physical conditions; or,

E. to comply with applicable requirements for on-site flood control structures leaves insufficient area to meet the standard.

(b) A determination that it is infeasible to manage the design standard volume specified in Part I.D.5.b.(ii)(b), or a portion of the design standard volume, on site may not be based solely on the difficulty or cost of implementing onsite control measures, but must include multiple criteria that rule out an adequate combination of the practices set forth in Part I.D,5.b.(v).

(c) This permit does not prevent imposition of more stringent requirements related to flood control. Where both the permittee's site design standard ordinance or policy and local flood control requirements on site cannot be met due to site conditions, the standard may be met through a combination of on-site and off-site controls.

(d) Where applicable New Mexico water law limits the ability to fully manage the design standard volume on site, measures to minimize increased discharge consistent with requirements under New Mexico water law must still be implemented.

(e) In instances where an alternative to compliance with the standard on site is chosen, technical justification as to the infeasibility of on-site management of the entire design standard volume, or a portion of the design standard volume, is required to be documented by submitting to the permittee a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect.

(f) When a Permittee determines a project applicant has demonstrated infeasibility due to site constraints specified in Part I.D.5.b.(v) to manage the design standard volume specified in Part I.D.5.b.(ii).(b) or a portion of the design standard volume on-site, the Permittee shall require one of the following mitigation options:

A. Off-site mitigation. The off-site mitigation option only applies to redevelopment sites and cannot be applied to new development. Management of the standard volume, or a portion of the volume, may be implemented at another location within the MS4 area, approved by the permittee. The permittee shall identify priority areas within the MS4 in which mitigation projects can be completed. The permittee shall determine who will be responsible for long-term maintenance on off-site mitigation projects.

B. Ground Water Replenishment Project: Implementation of a project that has been determined to provide an opportunity to replenish regional ground water supplies at an offsite location.

C. Payment in lieu. Payment in lieu may be made to the permittee, who will apply the funds to a public stormwater project. MS4s shall maintain a publicly accessible database of approved projects for which these payments may be used.

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D. Other. In a situation where alternative options A through C above are not feasible and the permittee wants to establish another alternative option for projects, the permitte may submit to the EPA for approval, the alternative option that meets the standard.

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(vi) The permittee must estimate the number of acres of impervious area (IA) and directly connected impervious area (DCIA). For the purpose of his part, IA includes conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops. DCIA is the portion of IA with a direct hydraulic connection to the permittee's MS4 or a waterbody via continuous paved surfaces, gutters, pipes, and other impervious features. DCIA typically does not include isolated impervious areas with an indirect hydraulic connection to the MS4 (e.g., swale or detention basin) or that otherwise drain to a pervious area.

(vii) The permittee must develop an inventory and priority ranking of MS4-owned property and infrastructure (including public right-of-way) that may have the potential to be retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges to and from its MS4. In determining the potential for retrofitting, the permittee shall consider factors such as the complexity and cost of implementation, public safety, access for maintenance purposes, subsurface geology, depth to water table, proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems, and opportunities for public use and education under the applicable water right requirements and restrictions. In determining its priority ranking, the permittee shall consider factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects; current storm sewer level of service and control of discharges to impaired waters, streams, and critical receiving water (drinking water supply sources);

(viii) The permittee must incorporate watershed protection elements into relevant policy and/or planning documents as they come up for regular review. If a relevant planning document is not scheduled for review during the term of this permit, the permittee must identify the elements that cannot be implemented until that document is revised, and provide to EPA and NMED a schedule for incorporation and implementation not to exceed five years from the effective date of this permit. As applicable to each permittee's MS4 jurisdiction, policy and/or planning documents must include the following:

(a) A description of master planning and project planning procedures to control the discharge of pollutants to and from the MS4.

(b) Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by controlling the unnecessary creation, extension and widening of impervious parking lots, roads and associated development. The permittee may evaluate the need to add impervious surface on a case-by-case basis and seek to identify alternatives that will meet the need without creating the impervious surface.

(c) Identify environmentally and ecologically sensitive areas that provide water quality benefits and serve critical watershed functions within the MS4 and ensure requirements to preserve, protect, create and/or restore these areas are developed and implemented during the plan and design phases of projects in these identified areas. These areas may include, but are not limited to critical watersheds, floodplains, and areas with endangered species concerns and historic properties. Stakeholders shall be consulted as appropriate.

(d) Implement stormwater management practices that minimize water quality impacts to streams, including disconnecting direct discharges to surface waters from impervious surfaces such as parking lots.

(e) Implement stormwater management practices that protect and enhance groundwater recharge as allowed under the applicable water rights laws.

(f) Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges.

(g) Develop and implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.

(h) The program must be specifically tailored to address local community needs (e.g. protection to drinking water sources, reduction of water quality impacts) and must be designed to attempt to maintain pre-development runoff conditions.

(ix) The permittee must update the SWMP as necessary to include a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.b.(i) throughout Part I.D.5.b.(viii) as well as the citations and descriptions of design standards for structural and non-structural controls to control pollutants in stormwater runoff, including discussion of the methodology used during design for estimating impacts to water quality and selecting structural and non-structural controls. Description of measurable goals for each BMP (structural or non-structural) or each stormwater control must be included in the SWMP.

(x) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report. The following information must be included in each annual report:

(a) Include a summary and analysis of all maintenance, inspections and enforcement, and the number and frequency of inspections performed annually.

(b) A cumulative listing of the annual modifications made to the Post-Construction Stormwater Management Program during the permit term, and a cumulative listing of annual revisions to administrative procedures made or ordinances enacted during the permit term.

(c) According to the schedule presented in the Program Development and Implementation Schedule in Table 3, the permittee must

A. Report the number of MS4-owned properties and infrastructure that have been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges. The permittee may also include in its annual report non-MS4 owned property that has been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges.

B. As required in Part I.D.5.b.(vi), report the tabulated results for IA and DCIA and its estimation methodology. In each subsequent annual report, the permittee shall estimate the number of acres of IA and DCIA that have been added or removed during the prior year. The permittee shall include in its estimates the additions and reductions resulting from development, redevelopment, or retrofit projects undertaken directly by the permittee; or by private developers and other parties in a voluntary manner on in compliance with the permittee's regulations.

Program Flexibility Elements:

(xi) The permittee may use storm water educational materials locally developed or provided by EPA (refer to http://water.epa.gov/polwaste/npdes/swbmp/index.cfm, http://www.epa.gov/smartgrowth/parking.htm, and http://www.epa.gov/smartgrowth/stormwater.htm); the NMED; environmental, public interest or trade organizations; and/or other MS4s.

(xii) When choosing appropriate BMPs, the permittee may participate in locally-based watershed planning efforts, which attempt to involve a diverse group of stakeholders including interested citizens. When developing a program that is consistent with this measure's intent, the permittee may adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures.

(xiii) The permittee may incorporate the following elements in the Post-Construction Stormwater Management in New Development and Redevelopment program required in Part I.D.5.b.(ii)(b):

(a) Provide requirements and standards to direct growth to identified areas to protect environmentally and ecologically sensitive areas such as floodplains and/or other areas with endangered species and historic properties concerns;

(b) Include requirements to maintain and/or increase open space/buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; and

(c) Encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure.

Table 3. Post-Construction Stormwater Management in New Development and Redevelopment - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Development of strategies as required in Part I.D.5.b.(ii).(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii).(b)	Twenty (24) months from effective date of permit	Thirty (30) months from effective date of permit	Thirty six (36) months from effective date of permit	Thirty six (36) months from effective date of permit	Thirty six (36) months from effective date of permit
Implementation and enforcement, via the ordinance or other regulatory mechanism, of site design standards as required in Part I.D.5.b.(ii).(b)	Within thirsty six (36) months from effective date of the permit	Within forty two (42) months from the effective date of the permit	Within forty eight (48) months from effective date of the permit	Within forty eight (48) months from effective date of the permit	Within forty eight (48) months from effective date of the permit
Ensure appropriate implementation of structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop procedures as required in Part I.D.5.b.(ii).(e), Part I.D.5.b.(ii).(f), Part I.D.5.b.(ii).(g), and Part I.D.5.b.(ii).(h)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit

Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.b.(iii)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	One (1) year from effective date of permit
As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit
As required in Part I.D.5.b.(iv), develop and submit a report of the assessment findings on GI/LID/Sustainable practices.	Eleven (11) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Twenty seven (27) months from effective date of permit
Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Inventory and priority ranking as required in section in Part I.D.5.b.(vii)	Within fifteen (15) months from effective date of the permit	Within twenty four (24) months from effective date of the permit	Within thirty six (36) months from effective date of the permit	Within thirty six (36) months from effective date of the permit	Within forty two (42) months from effective date of the permit
Incorporate watershed protection elements as required in Part I.D.5.b.(viii)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.b.(ix) and Part I.D.5.b.(x).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.b.(xi) and Part I.D.5.b.(xii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

c. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations.

(i) The permittee must develop, revise and implement an operation and maintenance program that includes a training component and the ultimate goal of preventing or reducing pollutant runoff from municipal operations. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**. The program must include:

(a) Development and implementation of an employee training program to incorporate pollution prevention and good housekeeping techniques into everyday operations and maintenance activities. The employee training program must be designed to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. The permittee must also develop a tracking procedure and ensure that employee turnover is considered when determining frequency of training;

(b) Maintenance activities, maintenance schedules, and long term inspections procedures for structural and non-structural storm water controls to reduce floatable, trash, and other pollutants discharged from the MS4.

(c) Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, snow disposal areas operated by the permittee, and waste transfer stations;

(d) Procedures for properly disposing of waste removed from the separate storm sewers and areas listed in Part I.D.5.c.(i).(c) (such as dredge spoil, accumulated sediments, floatables, and other debris); and

(e) Procedures to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices.

Note: The permittee may use training materials that are available from EPA, NMED, Tribe, or other organizations.

(ii) The Pollution Prevention/Good Housekeeping program must include the following elements:

(a) Develop or update the existing list of all stormwater quality facilities by drainage basin, including location and description;

(b) Develop or modify existing operational manual for de-icing activities addressing alternate materials and methods to control impacts to stormwater quality;

(c) Develop or modify existing program to control pollution in stormwater runoff from equipment and vehicle maintenance yards and maintenance center operations located within the MS4;

(d) Develop or modify existing street sweeping program. Assess possible benefits from changing frequency or timing of sweeping activities or utilizing different equipment for sweeping activities;

(e) A description of procedures used by permittees to target roadway areas most likely to contribute pollutants to and from the MS4 (i.e., runoff discharges directly to sensitive receiving water, roadway receives majority of de-icing material, roadway receives excess litter, roadway receives greater loads of oil and grease);

(f) Develop or revise existing standard operating procedures for collection of used motor vehicle fluids (at a minimum oil and antifreeze) and toxics (including paint, solvents, fertilizers, pesticides, herbicides,

and other hazardous materials) used in permittee operations or discarded in the MS4, for recycle, reuse, or proper disposal;

(g) Develop or revised existing standard operating procedures for the disposal of accumulated sediments, floatables, and other debris collected from the MS4 and during permittee operations to ensure proper disposal;

(h) Develop or revised existing litter source control programs to include public awareness campaigns targeting the permittee audience; and

(i) Develop or review and revise, as necessary, the criteria, procedures and schedule to evaluate existing flood control devices, structures and drainage ways to assess the potential of retrofitting to provide additional pollutant removal from stormwater. Implement routine review to ensure new and/or innovative practices are implemented where applicable.

(j) Enhance inspection and maintenance programs by coordinating with maintenance personnel to ensure that a target number of structures per basin are inspected and maintained per quarter;

(k) Enhance the existing program to control the discharge of floatables and trash from the MS4 by implementing source control of floatables in industrial and commercial areas;

(l) Include in each annual report, a cumulative summary of retrofit evaluations conducted during the permit term on existing flood control devices, structures and drainage ways to benefit water quality. Update the SWMP to include a schedule (with priorities) for identified retrofit projects;

(m) Flood management projects: review and revise, as necessary, technical criteria guidance documents and program for the assessment of water quality impacts and incorporation of water quality controls into future flood control projects. The criteria guidance document must include the following elements:

A. Describe how new flood control projects are assessed for water quality impacts.

B. Provide citations and descriptions of design standards that ensure water quality controls are incorporated in future flood control projects.

C. Include method for permittees to update standards with new and/or innovative practices.

D. Describe master planning and project planning procedures and design review procedures.

(n) Develop procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied, by the permittee's employees or contractors, to public right-of-ways, parks, and other municipal property. The permittee must provide an updated description of the data monitoring system for all permittee departments utilizing pesticides, herbicides and fertilizers.

(iii) Comply with the requirements included in the EPA Multi Sector General Permit (MSGP) to control runoff from industrial facilities (as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi)) owned or operated by the permittees and ultimately discharge to the MS4. The permittees must develop or update:

(a) A list of municipal/permittee operations impacted by this program,

(b) A map showing the industrial facilities owned and operated by the MS4,

(c) A list of the industrial facilities (other than large construction activities defined as industrial activity) that will be included in the industrial runoff control program by category and by basin. The list must include the permit authorization number or a MSGP NOI ID for each facility as applicable.

(iv) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.c.(i) throughout Part I.D.5.c.(iii) and its corresponding measurable goal.

(v) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 4. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
-Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Eighteen (18) months from effective date of the permit
-Enhance the program to include the elements in Part I.D.5.c.(ii)	Ten (10) months from effective date of the permit	One (1) year from effective date of the permit	Two (2) years from effective date of the permit	Two (2) years from effective date of the permit	Thirty (30) months from effective date of the permit
-Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.c.(iv) and Part I.D.5.c.(v)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs (**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

d. Industrial and High Risk Runoff (Applicable only to Class A permittees)

(i) The permittee must control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi). If no such industrial activities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.

(ii) The permittee must continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report. The program shall include:

(a) A description of a program to identify, monitor, and control pollutants in stormwater discharges to the MS4 from municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.); hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee(s) determines are contributing a substantial pollutant loading to the

MS4. (Note: If no such facilities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.); and

(b) Priorities and procedures for inspections and establishing and implementing control measures for such discharges.

(iii) Permittees must comply with the monitoring requirements specified in Part III.A.4;

(iv) The permittee must modify the following as necessary:

(a) The list of the facilities included in the program, by category and basin;

(b) Schedules and frequency of inspection for listed facilities. Facility inspections may be carried out in conjunction with other municipal programs (e.g. pretreatment inspections of industrial users, health inspections, fire inspections, etc.), but must include random inspections for facilities not normally visited by the municipality;

(c) The priorities for inspections and procedures used during inspections (e.g. inspection checklist, review for NPDES permit coverage; review of stormwater pollution prevention plan; etc.); and

(d) Monitoring frequency, parameters and entity performing monitoring and analyses (MS4 permittees or subject facility). The monitoring program may include a waiver of monitoring for parameters at individual facilities based on a "no-exposure" certification;

(v) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.d.(i) throughout Part I.D.5.d.(iv) and its corresponding measurable goal.

(vi) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Program Flexibility Elements:

(vii) The permittee may:

(a) Use analytical monitoring data, on a parameter-by-parameter basis, that a facility has collected to comply with or apply for a State or NPDES discharge permit (other than this permit), so as to avoid unnecessary cost and duplication of effort;

(b) Allow the facility to test only one (1) outfall and to report that the quantitative data also apply to the substantially identical outfalls if:

A. A Type 1 or Type 2 industrial facility has two (2) or more outfalls with substantially identical effluents, and

B. Demonstration by the facility that the stormwater outfalls are substantially identical, using one (1) or all of the following methods for such demonstration. The NPDES Stormwater Sampling Guidance Document (EPA 833-B-92-001), available on EPA's website at provides detailed guidance on each of the three options: (1) submission of a narrative description and a site map; (2) submission of matrices; or (3) submission of model matrices.

(c) Accept a copy of a "no exposure" certification from a facility made to EPA under 40 CFR §122.26(g), in lieu of analytic monitoring.

Table 5: Industrial and High Risk Runoff - Program Development and Implementation Schedules:

Activity	Permittee Class	
	A **Phase I MS4s**	**Cooperative (*)** **Any Permittee with cooperative programs**
Ordinance (or other control method) as required in Part I.D.5.d.(i)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report as required in Part I.D.5.d.(ii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Meet the monitoring requirements in Part I.D.5.d.(iii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Include requirements in Part I.D.5.d.(iv)	Ten (10) months from permit effective date of the permit	Twelve (12) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.d.(v) and Part I.D.5.d.(vi)	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.d.(vii)	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs. Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

e. Illicit Discharges and Improper Disposal

(i) The permittee shall develop, revise, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) entering the MS4. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**. The permittee must:

(a) Develop, if not already completed, a storm sewer system map, showing the names and locations of all outfalls as well as the names and locations of all waters of the United States that receive discharges from those outfalls. Identify all discharges points into major drainage channels draining more than twenty (20) percent of the MS4 area;

(b) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into the MS4, and implement appropriate enforcement procedures and actions;

(c) Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumpling, to the MS4. The permittee must include the following elements in the plan:

A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, *E. coli*, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather;

B. Procedures for enforcement, including enforcement escalation procedures for recalcitrant or repeat offenders;

C. Procedures for removing the source of the discharge;

D. Procedures for program evaluation and assessment; and

E. Procedures for coordination with adjacent municipalities and/or state, tribal, or federal regulatory agencies to address situations where investigations indicate the illicit discharge originates outside the MS4 jurisdiction.

(d) Develop an education program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. The permittee shall inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.

(e) Establish a hotline to address complaints from the public.

(f) Investigate suspected significant/severe illicit discharges within forty-eight (48) hours of detection and all other discharges as soon as practicable; elimination of such discharges as expeditiously as possible; and, requirement of immediate cessation of illicit discharges upon confirmation of responsible parties.

(g) Review complaint records for the last permit term and develop a targeted source reduction program for those illicit discharge/improper disposal incidents that have occurred more than twice in two (2) or more years from different locations. (Applicable only to class A and B permittees)

(h) If applicable, implement the program using the priority ranking develop during last permit term

(ii) The permittee shall address the following categories of non-stormwater discharges or flows (e.g., illicit discharges) only if they are identified as significant contributors of pollutants to the MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(90)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

Note: Discharges or flows from fire fighting activities are excluded from the effective prohibitions against non-stormwater and need only be addressed where they are identified a significant sources of pollutants to water of the United States).

(iii) The permittee must screen the entire jurisdiction at least once every five (5) years and high priority areas at least once every year. High priority areas include any area where there is ongoing evidence of illicit discharges or dumping, or where there are citizen complaints on more than five (5) separate events within twelve (12) months. The permittee must:

(a) Include in its SWMP document a description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected.

(b) Comply with the dry weather screening program established in Table 6 and the monitoring requirements specified in Part III.A.2.

(c) If applicable, implement the priority ranking system develop in previous permit term.

(iv) Waste Collection Programs: The permittee must develop, update, and implement programs to collect used motor vehicle fluids (at a minimum, oil and antifreeze) for recycle, reuse, or proper disposal, and to collect household hazardous waste materials (including paint, solvents, fertilizers, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. Where available, collection programs operated by third parties may be a component of the programs. Permittees shall enhance these programs by establishing the following elements as a goal in the SWMP:

A. Increasing the frequency of the collection days hosted;

B. Expanding the program to include commercial fats, oils and greases; and

C. Coordinating program efforts between applicable permittee departments.

(v) Spill Prevention and Response. The permittee must develop, update and implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The permittees must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The Spill Prevention and Response program shall include:

(a) Where discharge of material resulting from a spill is necessary to prevent loss of life, personal injury, or severe property damage, the permittee(s) shall take, or insure the party responsible for the spill takes, all reasonable steps to control or prevent any adverse effects to human health or the environment: and

(b) The spill response program may include a combination of spill response actions by the permittee (and/or another public or private entity), and legal requirements for private entities within the permittee's municipal jurisdiction.

(vi) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.e.(i) throughout Part I.D.5.e.(v) and its corresponding measurable goal. A description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

(viii) The permittee must expeditiously revise as necessary, within nine (9) months from the effective date of the permit, the existing permitting/certification program to ensure that any entity applying for the use of Right of Way implements controls in their construction and maintenance procedures to control pollutants entering the MS4. (Only applicable to NMDOT)

Program Flexibility Elements

(ix) The permittee may:

(a) Divide the jurisdiction into assessment areas where monitoring at fewer locations would still provide sufficient information to determine the presence or absence of illicit discharges within the larger area;

(b) Downgrade high priority areas after the area has been screened at least once and there are citizen complaints on no more than five (5) separate events within a twelve (12) month period;

(c) Rely on a cooperative program with other MS4s for detection and elimination of illicit discharges and illegal dumping;

(d) If participating in a cooperative program with other MS4s, required detection program frequencies may be based on the combined jurisdictional area rather than individual jurisdictional areas and may use assessment areas crossing jurisdictional boundaries to reduce total number of screening locations (e.g., a shared single screening location that would provide information on more than one jurisdiction); and

(e) After screening a non-high priority area once, adopt an "in response to complaints only" IDDE for that area provided there are citizen complaints on no more than two (2) separate events within a twelve (12) month period.

(f) Enhance the program to utilize procedures and methodologies consistent with those described in "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments."

Table 6. Illicit Discharges and Improper Disposal - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census ***)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Mapping as required in Part I.D.5.e.(i)(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Fourteen (14) months from effective date of permit
Ordinance (or other control method) as required in Part I.D.5.e.(i)(b)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop and implement a IDDE plan as required in Part I.D.5.e.(i)(c)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop an education program as required in Part I.D.5.e.(i)(d)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Establish a hotline as required in Part I.D.5.e.(i)(e)	Update as necessary	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i)(f)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i)(g)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	N/A	N/A	One (1) year from effective date of permit

Screening of system as required in Part I.D.5.e.(iii) as follows: a.) High priority areas**	1 / year	1 / year	1 / year	1 / year	1 / year
b.) Whole system	-Screen 20% of the MS4 per year	- Screen 20% of the MS4 per year	-Years 1 – 2: develop procedures as required in Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 2: develop procedures as required Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 3: develop procedures as require in Part I.D.5.e.(i)(c) -Year 4: screen 30% of the MS4 -Year 5: screen 70% of the MS4
Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv)	Ten (10) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.e.(iii), Part I.D.5.e.(vi), and Part I.D.5.e.(vii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.e.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) High priority areas include any area where there is ongoing evidence of illicit discharges or dumpling, or where there are citizen complaints on more than five (5) separate events within twelve (12) months
(***) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

f. Control of Floatables Discharges

(i) The permittee must develop, update, and implement a program to address and control floatables in discharges into the MS4. The floatables control program shall include source controls and, where necessary, structural controls. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit.** The following elements must be included in the program:

(a) Develop a schedule for implementation of the program to control floatables in discharges into the MS4 (Note: AMAFCA and the City of Albuquerque should update the schedule according to the findings of the 2005 AMAFCA/COA Floatable and Gross Pollutant Study and other studies); and

(b) Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type.

(ii) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.f.(i).

(iii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 7. Control of Floatables Discharges - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
- Develop a schedule to implement the program as required in Part I.D.5.f.(i)(a)	Ten (10) months from the effective date of the permit	Ten (10) months from the effective date of the permit	One (1) year from the effective date of the permit	One (1) year from the effective date of the permit	Eighteen (18) months from the effective date of the permit
-Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i)(b)	Ten (10) months from the effective date of the permit	One (1) year from the effective date of the permit	Two (2) years from the effective date of the permit	Two (2) years from the effective dae of the permit	Thirty (30) months from the effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.f.(ii) and Part I.D.5.f.(iii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

g. Public Education and Outreach on Stormwater Impacts

(i) The permittee shall, individually or cooperatively, develop, revise, implement, and maintain a comprehensive stormwater program to educate the community, employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater. **Permittees previously covered under NMS000101 and NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**.

(ii) The permittee must implement a public education program to distribute educational knowledge to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. The permittee must:

(a) Define the goals and objectives of the program based on high priority community-wide issues;

(b) Develop or utilize appropriate educational materials, such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, and websites;

(c) Inform individuals and households about ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes;

(d) Inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups;

(e) Use tailored public education program, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed cleanups; and

(f) Use materials or outreach programs directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. The permittee may tailor the outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children. The permittee must make information available for non-English speaking residents, where appropriate.

(iii) The permittee must include the following information in the Stormwater Management Program (SWMP) document:

(a) A description of a program to promote, publicize, facilitate public reporting of the presence of illicit discharges or water quality associated with discharges from municipal separate storm sewers;

(b) A description of the education activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and

(c) A description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.g.(i) and Part I.D.5.g.(ii) and its corresponding measurable goal.

(iv) The permittee must assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the Annual Report.

Program Flexibility Elements

(v) Where necessary to comply with the Minimum Control Measures established in Part I.D.5.g.(i) and Part I.D.5.g.(ii), the permittee should develop a program or modify/revise an existing education and outreach program to:

(a) Promote, publicize, and facilitate the use of Green Infrastructure (GI)/Low Impact Development (LID)/Sustainability practices; and

(b) Include an integrated public education program (including all permittee departments and programs within the MS4) regarding litter reduction, reduction in pesticide/herbicide use, recycling and proper

disposal (including yard waste, hazardous waste materials, and used motor vehicle fluids), and GI/LID/Sustainable practices (including xeriscaping, reduced water consumption, water harvesting practices allowed by the New Mexico State Engineer Office).

(vi) The permittee may collaborate or partner with other MS4 operators to maximize the program and cost effectiveness of the required outreach.

(vii) The education and outreach program may use citizen hotlines as a low-cost strategy to engage the public in illicit discharge surveillance.

(viii) The permittee may use stormwater educational materials provided by the State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The permittee may also integrate the education and outreach program with existing education and outreach programs in the Middle Rio Grande area. Example of existing programs include:

(a) Classroom education on stormwater;

A. Develop watershed map to help students visualize area impacted.

B. Develop pet-specific education

(b) Establish a water committee/advisor group;

(c) Contribute and participate in Stormwater Quality Team;

(d) Education/outreach for commercial activities;

(e) Hold regular employee trainings with industry groups

(f) Education of lawn and garden activities;

(g) Education on sustainable practices;

(h) Education/outreach of pet waste management;

(i) Education on the proper disposal of household hazardous waste;

(j) Education/outreach programs aimed at minority and disadvantaged communities and children;

(k) Education/outreach of trash management;

(l) Education/outreach in public events;

A. Participate in local events—brochures, posters, etc.

B. Participate in regional events (i.e., State Fair, Balloon Fiesta).

(m) Education/outreach using the media (e.g. publish local newsletters);

(n) Education/outreach on water conservation practices designed to reduce pollutants in storm water for home residences.

Table 8. Public Education and Outreach on Stormwater Impacts - Program Development and Implementation Schedules

Activity	Permittee Class				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii)	Ten (10) months from the effective date of the permit	Eleven (11) months from the effective date of the permit	Twelve (12) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.g.(iii) and Part I.D.5.g.(iv)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

h. Public Involvement and Participation

(i) The permittee must provide local public notice of and make available for public review a copy of the complete NOI and attachments (see Part I.B.2). Local public notice may be made by newspaper notice, notice at a council meeting, posting on the internet, or other method consistent with state/tribal/local public notice requirements.

The permittee must consider all public comments received during the public notice period and modify the NOI, or include a schedule to modify the SWMP, as necessary, or as required by the Director modify the NOI or/and SWMP in response to such comments. The Permittees must include in the NOI any unresolved public comments and the MS4's response to these comments. Responses provided by the MS4 will be considered as part of EPA's decision-making process. See also Appendix E Providing Comments or Requesting a Public Hearing on an Operator's NOI.

(ii) The permittee shall develop, revise, implement and maintain a plan to encourage public involvement and provide opportunities for participation in the review, modification and implementation of the SWMP; develop and implement a process by which public comments to the plan are received and reviewed by the person(s) responsible for the SWMP; and, make the SWMP available to the public and to the operator of any MS4 or Tribal authority receiving discharges from the MS4. **Permittee previously covered under NMS000101 or NMR040000 must continue existing public involvement and participation programs while updating those programs, as necessary, to comply with the requirements of this permit**.

(iii) The plan required in Part I.D.5.h.(ii) shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The permittee must include the following elements in the plan:

(a) A detailed description of the general plan for informing the public of involvement and participation opportunities, including types of activities; target audiences; how interested parties may access the SWMP; and how the public was involved in development of the SWMP;

(b) The development and implementation of at least one (1) assessment of public behavioral change following a public education and/or participation event;

(c) A process to solicit involvement by environmental groups, environmental justice communities, civic organizations or other neighborhoods/organizations interested in water quality-related issues, including but not limited to the Middle Rio Grande Water Quality Work Group, the Middle Rio Grande Bosque Initiative, the Middle Rio Grande Endangered Species Act Collaborative Program, the Middle Rio Grande-Albuquerque Reach Watershed Group, the Pueblos of Santa Ana, Sandia and Isleta, Albuquerque Bernalillo County Water Utility Authority, UNM Colleges and Schools, and Chartered Student Organizations; and

(d) An evaluation of opportunities to utilize volunteers for stormwater pollution prevention activities and awareness throughout the area.

(iv) The permittee shall comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.

(v) The public participation process must reach out to all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts.

(vi) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Parts I.D.5.h.(i) throughout Part I.D.5.h.(iv) and its corresponding measurable goal.

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

(viii) The permittee must provide public accessibility of the Storm Water Management Program (SWMP) document and Annual Reports online via the Internet and during normal business hours at the MS4 operator's main office, a local library, posting on the internet and/or other readily accessible location for public inspection and copying consistent with any applicable federal, state, tribal, or local open records requirements. Upon a showing of significant public interest, the MS4 operator is encouraged to hold a public meeting (or include in the agenda of in a regularly scheduled city council meeting, etc.) on the NOI, SWMP, and Annual Reports. (See Part III B)

Program Flexibility Elements

(ix) The permittee may integrate the public Involvement and participation program with existing education and outreach programs in the Middle Rio Grande area. Example of existing programs include: Adopt-A-Stream Programs; Attitude Surveys; Community Hotlines (e.g. establishment of a "311"-type number and system established to handle storm-water-related concerns, setting up a public tracking/reporting

system, using phones and social media); Revegetation Programs; Storm Drain Stenciling Programs; Stream cleanup and Monitoring program/events.

Table 9. Public Involvement and Participation - *Program Development and Implementation Schedules*

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii) and Part I.D.5.h.(iii)	Ten (10) months from effective date of the permit	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit
Comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	Twelve (12) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit
Include elements as required in Part I.D.5.h.(v)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.h.(vi), Part I.D.5.h.(vii), and Part I.D.5.h.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.h.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

6. **Stormwater Management Program Review and Modification**.

a. Program Review. Permittee shall participate in an annual review of its SWMP in conjunction with preparation of the annual report required in Part III.B. Results of the review shall be discussed in the annual report and shall include an assessment of:

(i) SWMP implementation, progress in achieving measurable goals, and compliance with program elements and other permit conditions;

(ii) the effectiveness of its SWMP, and any necessary modifications, in complying with the permit, including requirements to control the discharge of pollutants, and comply with water quality standards and any applicable approved TMDLs; and the adequacy of staff, funding levels, equipment, and support capabilities to fully implement the SWMP and comply with permit conditions.

(a) Project staffing requirements, in man hours, for the implementation of the MS4 program during the upcoming year.

(b) Staff man hours used during the previous year for implementing the MS4 program. Man hours may be estimated based on staff assigned, assuming a forty (40) hour work week.

b. Program Modification. The permittee(s) may modify its SWMP with prior notification or request to the EPA and NMED in accordance with this section.

(i) Modifications adding, but not eliminating, replacing, or jeopardizing fulfillment of any components, controls, or requirements of its SWMP may be made by the permittee(s) at any time upon written notification to the EPA.

(ii) Modifications replacing or eliminating an ineffective or unfeasible component, control or requirement of its SWMP, including monitoring and analysis requirements described in Parts III.A and V, may be requested in writing at any time. If request is denied, the EPA will send a written explanation of the decision. Modification requests shall include the following:

(a) a description of why the SWMP component is ineffective, unfeasible (including cost prohibitions), or unnecessary to support compliance with the permit;

(b) expectations on the effectiveness of the proposed replacement component; and

(c) an analysis of how the proposed replacement component is expected to achieve the goals of the component to be replaced.

(iii) Modifications resulting from schedules contained in Part VI may be requested following completion of an interim task or final deadline.

(iv) Modification requests or notifications shall be made in writing, signed in accordance with Part IV.H.

c. Program Modifications Required by EPA. Modifications requested by EPA shall be made in writing, set forth the time schedule for the permittee(s) to develop the modifications, and offer the permittee(s) the opportunity to propose alternative program modifications to meet the objective of the requested modification. The EPA may require changes to the SWMP as needed to:

(i) Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;

(ii) Include more stringent requirements necessary to comply with new State or Federal statutory or regulatory requirements;

(iii) Include such other conditions deemed necessary by the EPA to comply with the goals and requirements of the Clean Water Act; or

(iv) If, at any time, EPA determines that the SWMP does not meet permit requirements.

d. Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation: The permittee(s) shall implement the SWMP:

(i) On all new areas added to their portion of the MS4 (or for which they become responsible for implementation of stormwater quality controls) as expeditiously as possible, but not later than one (1) year from addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately;

(ii) Within ninety (90) days of a transfer of ownership, operational authority, or responsibility for SWMP implementation, the permittee(s) shall have a plan for implementing the SWMP on all affected areas. The plan may include schedules for implementation; and information on all new annexed areas and any resulting updates required to the SWMP shall be submitted in the annual report.

7. **Retention of Program Records**. The permittee shall retain SWMP records developed in accordance with Part I.D, Part IV.P, and Part VI for at least five (5) years after coverage under this permit terminates.

8. **Qualifying State, Tribal or Local Program**. The permittee may substitute the BMPs and measurable goals of an existing storm water pollution control program to qualify for compliance with one or more of the minimum control measures if the existing measure meets the requirements of the minimum control measure as established in Part I.D.5

PART II. NUMERIC DISCHARGE LIMITATIONS

A. DISCHARGE LIMITATIONS. Reserved

PART III. MONITORING, ASSESSMENT, AND REPORTING REQUIREMENTS:

A. MONITORING AND ASSESSMENT

The permittee must develop, in consultation with NMED and EPA (and affected Tribes if monitoring locations would be located on Tribal lands), and implement a comprehensive monitoring and assessment program designed to meet the following objectives:

- Assess compliance with this permit;
- Assess the effectiveness of the permittee's stormwater management program;
- Assess the impacts to receiving waters resulting from stormwater discharges;
- Characterize stormwater discharges;
- Identify sources of elevated pollutant loads and specific pollutants;
- Detect and eliminate illicit discharges and illegal connections to the MS4; and
- Assess the overall health and evaluate long-term trends in receiving water quality.

The permittee shall be select specific monitoring locations sufficient to assess effects of storm water discharges on receiving waters. The monitoring program may take advantage of monitoring stations/efforts utilized by the permittees or others in previous stormwater monitoring programs or other water quality monitoring efforts. Data collected by others at such stations may be used to satisfy part, or all, of the permit monitoring requirements provided the data collection by that party meets the requirements established in Part III.A.1 throughout Part III.A.5. The comprehensive monitoring and assessment program shall be described in the SWMP document and the results must be provided in each annual report.

Implementation of the comprehensive monitoring and assessment program may be achieved through participation with other permittees to satisfy the requirements of Part III.A.1 throughout Part III.A.5 below in lieu of creating duplicate program elements for each individual permittee.

1. **Wet Weather Monitoring**: The permittees shall conduct wet weather monitoring to gather information on the response of receiving waters to wet weather discharges from the MS4 during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Wet Weather Monitoring shall be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations at each water of the US that runs in each entity or entities' jurisdiction(s). Permittees may choose either Option A or Option B below:

   a. *Option A*: Individual monitoring

      (i) Class A: Perform wet weather monitoring at a location coming into the MS4 jurisdictional area (upstream) and leaving the MS4 jurisdictional area (downstream), see Appendix D. Monitor for TSS, TDS, COD, BOD_5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Phase I permittees must include additional parameters from monitoring conducted under permit NMS000101 (from last 10 years) whose mean values are at or above a WQS. Permittee must sample these pollutants a minimum of 10 events during the permit term with at least 5 events in wet season and 4 events in dry season.

      (ii) Class B, C, and D: Perform wet weather monitoring at a location coming into the MS4 jurisdictional area (upstream) and leaving the MS4 jurisdictional area (downstream), see Appendix D. Monitor for TSS, TDS, COD, BOD_5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and gross alpha. Monitoring of temperature shall be also

conducted at outfalls and/or Rio Grande monitoring locations. If applicable, include additional parameters from monitoring conducted under permits NMR040000 or/and NMR04000I whose mean values are at or above a WQS; sample these pollutants a minimum of 8 events per location during the permit term with at least 4 events in wet season and 2 events in dry season.

b. *Option B*: Cooperative Monitoring Program

Develop a cooperative wet weather monitoring program with other permittees in the Middle Rio Grande watershed (see map in Appendix A). The program will monitor waters coming into the watershed (upstream) and leaving the watershed (downstream), see suggested sampling locations in Appendix D. The program must include sampling for TSS, TDS, COD, BOD5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and Gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Permittees must include additional parameters from monitoring conducted under permits NMS000101, NMR040000 or/and NMR04000I whose mean values are at or above a WQS. The monitoring program must sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events wet season and 2 events in dry season.

Note: Seasonal monitoring periods are: Wet Season: July 1 through October 31; Dry Season: November 1 through June 30.

c. Wet weather monitoring shall be performed only when the predicted (or actual) rainfall magnitude of a storm event is greater than 0.25 inches and an antecedent dry period of at least forty-eight (48) hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology will consist of collecting a minimum of four (4) grab samples spaced at a minimum interval of fifteen (15) minutes each (or a flow weighted automatic composite, see Part III.A.5.a.(i)). Individual grab samples shall be preserved and delivered to the laboratory where samples will be combined into a single composite sample from each monitoring location.

d. Monitoring methodology at each MS4 monitoring location shall be collected during any portion of the monitoring location's discharge hydrograph (i.e. first flush, rising limb, peak, and falling limb) after a discernible increase in flow at the tributary inlet.

e. The permittee must comply with the schedules contained in Table 10. The results of the Wet Weather Monitoring must be provided in each annual report.

f. DO, pH, conductivity, and temperature shall be analyzed in the field within fifteen (15) minutes of sample collection.

g. Alternate wet weather monitoring locations established in Part III.A.1.a or Part III.A.1.b may be substituted for just cause during the term of the permit. Requests for approval of alternate monitoring locations shall be made to the EPA and NMED in writing and include the rationale for the requested monitoring station relocation. Unless disapproved by the EPA, use of an alternate monitoring location (except for those with numeric effluent limitations) may commence thirty (30) days from the date of the request. For monitoring locations where numeric effluent limitations have been established, the permit must be modified prior to substitution of alternate monitoring locations. At least six (6) samples shall be collected during the first year of monitoring at substitute monitoring locations. If there are less than six sampleable events, this should be document for reporting purposes.

h. Response to monitoring results: The monitoring program must include a contingency plan for collecting additional monitoring data within the MS4 or at additional appropriate instream locations should monitoring results indicate that MS4 discharges may be contributing to instream exceedances of WQS. The purpose of this additional monitoring effort would be to identify sources of elevated pollutant loadings so they could be addressed by the SWMP.

Table 10. Wet Weather Monitoring Program Implementation Schedules:

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Submit wet weather monitoring preference to EPA (i.e., individual monitoring program vs. cooperative monitoring program) with NOI submittals	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)
Submit a detailed description of the monitoring scheme to EPA and NMED for approval. The monitoring scheme should include: a list of pollutants; a description of monitoring sites with an explanation of why those sites were selected; and a detailed map of all proposed monitoring sites	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Twelve (12) months from effective date of permit
Submit certification that all wet weather monitoring sites are operational and begin sampling	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Thirteen (13) months from effective date of permit	Thirteen (13) months from effective date of permit	Fourteen (14) months from effective date of permit
Update SWMP document and submit annual reports	Annually	Annually	Annually	Annually	Annually

(**) or MS4s designated by the Director

Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

2. **Dry Weather Discharge Screening of MS4**: Each permittee shall identify, investigate, and address areas within its jurisdiction that may be contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System as a result of dry weather discharges (i.e., discharges from separate storm sewers that occur without the direct influence of runoff from storm events, e.g. illicit discharges, allowable non-stormwater, groundwater infiltration, etc.). Due to the arid and semi-arid conditions of the area, the dry weather discharges screening program may be carried out during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Results of the assessment

shall be provided in each annual report. This program may be coordinated with the illicit discharge detection and elimination program required in Part I.D.5.e. The dry weather screening program shall be described in the SWMP and comply with the schedules contained in Part I.D.5.e.(iii). The permittee shall

a. Include sufficient screening points to adequately assess pollutant levels from all areas of the MS4.

b. Screen for, at a minimum, BOD_5, sediment or a parameter addressing sediment (e.g., TSS or turbidity), E. coli, Oil and Grease, nutrients, any pollutant that has been identified as cause of impairment of a waterbody receiving discharges from that portion of the MS4, including temperature.

c. Specify the sampling and non-sampling techniques to be issued for initial screening and follow-up purposes. Sample collection and analysis need not conform to the requirements of 40 CFR Part 136; and

d. Perform monitoring only when an antecedent dry period of at least seventy-two (72) hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology shall consist of collecting a minimum of four (4) grab samples spaced at a minimum interval of fifteen (15) minutes each. Grab samples will be combined into a single composite sample from each station, preserved, and delivered to the laboratory for analysis. A flow weighted automatic composite sample may also be used.

3. **Floatable Monitoring:** The permittees shall establish locations for monitoring/assessing floatable material in discharges to and/or from their MS4. Floatable material shall be monitored at least twice per year at priority locations and at minimum of two (2) stations except as provided in Part III.A.3. below. The amount of collected material shall be estimated in cubic yards.

a. One (1) station should be located in the North Diversion (only applicable to the COA and AMAFCA).

b. Non-traditional MS4 as defined in Part VII shall sample/assess at one (1) station.

c. Phase II MS4s shall sample/assess at one (1) station within their jurisdiction or participate in a cooperative floatable monitoring plan addressing impacts on perennial waters of the US on a larger watershed basis.

A cooperative monitoring program may be established in partnership with other MS4s to monitor and assess floatable material in discharges to and/or from a joint jurisdictional area or watershed basis.

4. **Industrial and High Risk Runoff Monitoring** (Applicable only to Class A permittees): The permittees shall monitor stormwater discharges from Type 1 and 2 industrial facilities which discharge to the MS4 provided such facilities are located in their jurisdiction. (Note: if no such facilities are in the permittee's jurisdiction, the permittee must certify that this program element does not apply). The permittee shall:

a. Conduct analytical monitoring of Type 1 facilities that discharge to the MS4. Type 1 facilities are municipal landfills; hazardous waste treatment, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and industrial facilities the permittee(s) determines are contributing a substantial pollutant loading to the MS4.

(i) The following parameters shall be monitored:
- any pollutants limited in an existing NPDES permit to a subject facility;

- oil and grease;
- chemical oxygen demand (COD);
- pH;
- biochemical oxygen demand, five-day (BOD_5);
- total suspended solids (TSS);
- total phosphorous;
- total Kjeldahl nitrogen (TKN);
- nitrate plus nitrite nitrogen;
- any discharge information required under 40 CFR §122.21(g)(7)(iii) and (iv);
- total cadmium;
- total chromium;
- total copper;
- total lead;
- total nickel;
- total silver;
- total zinc; and,
- PCBs.

(ii) Frequency of monitoring shall be established by the permittee(s), but may not be less than once per year;

(iii) In lieu of the above parameter list, the permittee(s) may alter the monitoring requirement for any individual Type 1 facility:

(a) To coincide with the corresponding industrial sector-specific monitoring requirements of the 2008 Multi-Sector General Stormwater Permit or any applicable general permit issued after September 2008. This exception is not contingent on whether a particular facility is actually covered by the general permit; or

(b) To coincide with the monitoring requirements of any individual permit for the stormwater discharges from that facility, and

(c) Any optional monitoring list must be supplemented by pollutants of concern identified by the permittee(s) for that facility.

b. Conduct appropriate monitoring (e.g. analytic, visual), as determined by the permittee(s), at Type 2 facilities that discharge to the MS4. Type 2 facilities are other municipal waste treatment, storage, or disposal facilities (e.g. POTWs, transfer stations, incinerators) and industrial or commercial facilities the permittee(s) believed contributing pollutants to the MS4. The permittee shall include in each annual report, a list of parameters of concern and monitoring frequencies required for each type of facility.

c. May use analytical monitoring data, on a parameter-by-parameter basis, that a facility has collected to comply with or apply for a State or NPDES discharge permit (other than this permit), so as to avoid unnecessary cost and duplication of effort;

d. May allow the facility to test only one (1) outfall and to report that the quantitative data also apply to the substantially identical outfalls if:

(i) A Type 1 or Type 2 industrial facility has two (2) or more outfalls with substantially identical effluents, and

(ii) Demonstration by the facility that the stormwater outfalls are substantially identical, using one (1) or all of the following methods for such demonstration. The NPDES Stormwater Sampling Guidance Document (EPA 833-B-92-001), available on EPA's website at provides detailed guidance on each of the three options: (1) submission of a narrative description and a site map; (2) submission of matrices; or (3) submission of model matrices.

b. May accept a copy of a "no exposure" certification from a facility made to EPA under 40 CFR §122.26(g), in lieu of analytic monitoring.

5. **Additional Sample Type, Collection and Analysis**:

a. Wet Weather (or Storm Event) Discharge Monitoring: If storm event discharges are collected to meet the objectives of the Comprehensive Monitoring and Assessment Program required in Part III.A (e.g., assess compliance with this permit; assess the effectiveness of the permittee's stormwater management program; assess the impacts to receiving waters resulting from stormwater discharges), the following requirements apply:

(i) Composite Samples: Flow-weighted composite samples shall be collected as follows:

(a) Composite Method – Flow-weighted composite samples may be collected manually or automatically. For both methods, equal volume aliquots may be collected at the time of sampling and then flow-proportioned and composited in the laboratory, or the aliquot volume may be collected based on the flow rate at the time of sample collection and composited in the field.

(b) Sampling Duration – Samples shall be collected for at least the first three (3) hours of discharge. Where the discharge lasts less than three (3) hours, the permittee should report the value. .

(c) Aliquot Collection – A minimum of three (3) aliquots per hour, separated by at least fifteen (15) minutes, shall be collected. Where more than three (3) aliquots per hour are collected, comparable intervals between aliquots shall be maintained (e.g. six aliquots per hour, at least seven (7) minute intervals).

(ii) Grab Samples: Grab samples shall be taken during the first two (2) hours of discharge.

b. Analytical Methods: Analysis and collection of samples shall be done in accordance with the methods specified at 40 CFR §136. Where an approved 40 CFR §136 method does not exist, any available method may be used unless a particular method or criteria for method selection (such as sensitivity) has been specified in the permit. The minimum quantification levels (MQLs) in Appendix F are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

Screening level tests may utilize less expensive "field test kits" using test methods not approved by EPA under 40 CFR 136, provided the manufacturers published detection ranges are adequate for the illicit discharge detection purposes.

EPA Method 1668 shall be utilized when PCB water column monitoring is conducted to determine compliance with permit requirements. For purposes of sediment sampling in dry weather as part of a screening program to identify area(s) where PCB control/clean-up efforts may need to be focused, either the Arochlor test (EPA Method 8082) or USGS test method (8093) may be utilized, but must use EPA Method 1668 (latest revision) for confirmation and determination of specific PCB levels at that location.

EPA Method 900.0 shall be utilized when gross alpha water column monitoring is conducted to determine compliance with permit requirements.

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B. ANNUAL REPORT

The permittees shall submit an annual report to be submitted by no later than **December 1st.** See suggested form at http://epa.gov/region6/water/npdes/sw/ms4/index.htm**.** The report shall cover the previous year from **July 1st to June 30rd** and include the below separate sections. Additionally, the year one (1) and year four (4) annual report shall include submittal of a complete SWMP revision.

At least forty five (45) days prior to submission of each Annual Report, the permittee must provide public notice of and make available for public review and comment a draft copy of the Annual Report. All public input must be considered in preparation of the final Annual Reports and any changes to the SWMP.

Note: A complete copy of the signed Annual Report should be maintained on site.

1. **SWMP(s) status of implementation**: shall include the status of compliance with all schedules established under this permit and the status of actions required in Parts I, III, and VI.

2. **SWMP revisions**: shall include revisions, if necessary, to the assessments of controls or BMPs reported in the permit application (or NOI for coverage under this permit) under 40 CFR §122.26(d)(2)(v) and §122.34(d)(1)(i) are to be included, as well as a cumulative list of all SWMP revisions during the permit term.

   Class A permittees shall include revisions, if necessary, to the fiscal analysis reported in the permit application (or NOI for coverage under this permit) under §122.26(d)(2)(vi).

3. **Performance assessment**: shall include:

   a. an assessment of performance in terms of measurable goals, including, but not limited to, a description of the number and nature of enforcement actions and inspections, public education and public involvement efforts;

   b. a summary of the data, including monitoring data, that is accumulated throughout the monitoring year (July 1 to June 30); actual values of representative monitoring results shall be included, if results are above minimum quantification level (MQL); and

   c. an identification of water quality improvements or degradation.

4. **Annual expenditures**: for the reporting period, with a breakdown for the major elements of the stormwater management program and the budget for the year following each annual report. (Applicable only to Class A permittees)

5. **Annual Report Responsibilities for Cooperative Programs:** preparation of a system-wide report with cooperative programs may be coordinated among cooperating MS4s and then used as part of individual Annual Reports. The report of a cooperative program element shall indicate which, if any, permittee(s) have failed to provide the required information on the portions of the MS4 for which they are responsible to the cooperation permittees.

   a. Joint responsibility for reports covering cooperative programs elements shall be limited to participation in preparation of the overview for the entire system and inclusion of the identity of any permittee who failed to provide input to the annual report.

b. Individual permittees shall be individually responsible for content of the report relating to the portions of the MS4 for which they are responsible and for failure to provide information for the system-wide annual report no later than July 31st of each year.

6. **Public Review and Comment**: a brief summary of any issues raised by the public on the draft Annual Report, along with permittee's responses to the public comments.

7. **Signature on Certification of Annual Reports**: The annual report shall be signed and certified, in accordance with Part IV.H and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been apprised of the content of the Annual Report. Annual report shall be due no later than December 1st of each year. A complete copy of the signed Annual Report should be maintained on site.

C. CERTIFICATION AND SIGNATURE OF RECORDS.

All reports required by the permit and other information requested by the EPA shall be signed and certified in accordance with Part IV.H.

D. REPORTING: WHERE AND WHEN TO SUBMIT

1. Monitoring results (Part III.A.1, Part III.A.3, Part III.A.5.a) obtained during the reporting period running from July 1st to June 30th shall be submitted on discharge monitoring report (DMR) forms along with the annual report required by Part III.B. A separate DMR form is required for each monitoring period (season) specified in Part III.A.1. If any individual analytical test result is less than the minimum quantification level (MQL) listed for that parameter, then a value of zero (0) may be used for that test result for the discharge monitoring report (DMR) calculations and reporting requirements. The annual report shall include the actual value obtained, if test result is less than the MQL (See Appendix F).

2. Signed copies of DMRs required under Part III, the Annual Report required by Part III.B, and all other reports required herein, shall be submitted in electronic form to R6_MS4Permits@epa.gov (note: there is an underscore between R6 and MS4).

   Copy of a suggested Annual Report Format is located in EPA R6 website: http://epa.gov/region6/water/npdes/sw/ms4/index.htm.

   Electronic submittal of the documents required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

3. Requests for SWMP updates, modifications in monitoring locations, or application for an individual permit shall, be submitted to,:

   U.S. EPA, Region 6
   Water Quality Protection Division
   Operations Support Office (6WQ-O)
   1445 Ross Avenue
   Dallas, Texas 75202-2733

4. Additional Notification. Permittee(s) shall also provide copies of NOIs, DMRs, annual reports, NOTs, requests for SWMP updates, items for compliance with permit requirements for Compliance with Water Quality Standards in Part I.C.1, TMDL's reports established in Part I.C.2, monitoring scheme, reports, and certifications required in Part III.A.1, programs or changes in monitoring locations, and all other reports required herein, to:

New Mexico Environment Department
Attn: Bruce Yurdin, Program Manager
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

Pueblo of Sandia Environment Department
Attn: Scott Bulgrin, Water Quality Manager
481 Sandia Loop
Bernalillo, NM 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Sandia: AMAFCA, Sandoval County, Village of Corrales, City of Rio Rancho, Town of Bernalillo, SSCAFCA, and ESCAFCA)

Pueblo of Isleta
Attn: Ramona M. Montoya, Environment Division Manager
P.O. Box 1270
Isleta NM 87022

(Notes: Only the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), New Mexico Department of Transportation (NMDOT) District 3, KAFB (Kirtland Air Force Base), Sandia Labs (DOE), and Bernalillo County). All parties submitting an NOI or NOT shall notify the Pueblo of Isleta in writing that a NOI or NOT has been submitted to EPA

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Santa Ana)

PART IV. STANDARD PERMIT CONDITIONS

A. DUTY TO COMPLY.

The permittee(s) must comply with all conditions of this permit insofar as those conditions are applicable to each permittee, either individually or jointly. Any permit noncompliance constitutes a violation of the Clean Water Act (The Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

B. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS.

The EPA will adjust the Civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (Federal Register: Dec. 31, 1996, Volume 61, No. 252, pages 69359-69366, as corrected, March 20, 1997, Volume 62, No. 54, pages 13514-13517) as mandated by the Debt Collection Improvement Act of 1996 for inflation on a periodic basis. This rule allows EPA's penalties to keep pace with inflation. The Agency is required to review its penalties at least once every four years thereafter and to adjust them as necessary for inflation according to a specified formula. The civil and administrative penalties listed below were adjusted for inflation starting in 1996.

1. **Criminal Penalties**.
   a. Negligent Violations: The Act provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one (1) year, or both.

   b. Knowing Violations: The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than three (3) years, or both.

   c. Knowing Endangerment: The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than fifteen (15) years, or both.

   d. False Statement: The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two (2) years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both. (See Section 309(c)(4) of the Act).

2. **Civil Penalties**. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $27,500 per day for each violation.

3. **Administrative Penalties**. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

   a. Class I penalty: Not to exceed $11,000 per violation nor shall the maximum amount exceed $27,500.

b. Class II penalty: Not to exceed $11,000 per day for each day during which the violation continues nor shall the maximum amount exceed $137,500.

C. DUTY TO REAPPLY. If the permittee wishes to continue an activity regulated by this permit after the permit expiration date, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days prior to expiration of this permit. The EPA may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR §122.6 and any subsequent amendments.

D. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

E. DUTY TO MITIGATE. The permittee(s) shall take all reasonable steps to control or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. DUTY TO PROVIDE INFORMATION. The permittee(s) shall furnish to the EPA, within a time specified by the EPA, any information which the EPA may request to determine compliance with this permit. The permittee(s) shall also furnish to the EPA upon request copies of records required to be kept by this permit.

G. OTHER INFORMATION. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in any report to the EPA, he or she shall promptly submit such facts or information.

H. SIGNATORY REQUIREMENTS. For a municipality, State, or other public agency, all DMRs, SWMPs, reports, certifications or information either submitted to the EPA or that this permit requires be maintained by the permittee(s), shall be signed by either a:

1. Principal executive officer or ranking elected official; or

2. Duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the EPA.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

3. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new written authorization satisfying the requirements of this paragraph must be submitted to the EPA prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification: Any person signing documents under this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. PENALTIES FOR FALSIFICATION OF MONITORING SYSTEMS. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the Act.

J. OIL AND HAZARDOUS SUBSTANCE LIABILITY. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the Act or section 106 of CERCLA.

K. PROPERTY RIGHTS. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

L. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

M. REQUIRING A SEPARATE PERMIT.

1. The EPA may require any permittee authorized by this permit to obtain a separate NPDES permit. Any interested person may petition the EPA to take action under this paragraph. The Director may require any permittee authorized to discharge under this permit to apply for a separate NPDES permit only if the permittee has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form (as necessary), a statement setting a deadline for the permittee to file the application, and a statement that on the effective date of the separate NPDES permit, coverage under this permit shall automatically terminate. Separate permit applications shall be submitted to the address shown in Part III.D. The EPA may grant additional time to submit the application upon request of the applicant. If an owner or operator fails to submit, prior to the deadline of the time extension, a separate NPDES permit application as required by the EPA, then the applicability of this permit to the permittee is automatically terminated at the end of the day specified for application submittal.

2. Any permittee authorized by this permit may request to be excluded from the coverage of this permit by applying for a separate permit. The permittee shall submit a separate application as specified by 40 CFR §122.26(d) for Class A permittees and by 40 CFR §122.33(b)(2) for Class B, C, and D permittees, with reasons supporting the request to the Director. Separate permit applications shall be submitted to the address shown in Part III.D.3. The request may be granted by the issuance of a separate permit if the reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the permittee is authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the permitting authority.

N. STATE / ENVIRONMENTAL LAWS.

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the Act.

2. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

O. PROPER OPERATION AND MAINTENANCE. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of stormwater management programs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

P. MONITORING AND RECORDS.

1. The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of Discharge Monitoring Reports (DMRs), a copy of the NPDES permit, and records of all data used to complete the NOI for this permit, for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended by request of the permitting authority at any time.

2. The permittee must submit its records to the permitting authority only when specifically asked to do so. The permittee must retain a description of the SWMP required by this permit (including a copy of the permit language) at a location accessible to the permitting authority. The permittee must make its records, including the NOI and the description of the SWMP, available to the public if requested to do so in writing.

3. Records of monitoring information shall include:
   a. The date, exact place, and time of sampling or measurements;
   b. The initials or name(s) of the individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The time(s) analyses were initiated;
   e. The initials or name(s) of the individual(s) who performed the analyses;
   f. References and written procedures, when available, for the analytical techniques or methods used; and
   g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

4. The permittee must maintain, for the term of the permit, copies of all information and determinations used to document permit eligibility under Parts I.A.5.f and Part I.A.3.b.

Q. MONITORING METHODS. Monitoring must be conducted according to test procedures approved under 40 CFR §136, unless other test procedures have been specified in this permit. The minimum quantification levels (MQLs) in Appendix F are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

R. INSPECTION AND ENTRY. The permittee shall allow the EPA or an authorized representative of EPA, or the State, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substance or parameters at any location.

S. PERMIT ACTIONS. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

T. ADDITIONAL MONITORING BY THE PERMITTEE(S). If the permittee monitors more frequently than required by this permit, using test procedures approved under 40 CFR §136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.

U. ARCHEOLOGICAL AND HISTORIC SITES (Applicable to areas within the corporate boundary of the City of Albuquerque and Tribal lands). This permit does not authorize any stormwater discharges nor require any controls to control stormwater runoff which are not in compliance with any historic preservation laws.

1. In accordance with the Albuquerque Archaeological Ordinance (Section 2-12-2, 14-16-5, and 14-14-3-4), an applicant for either:

   a. A preliminary plan for any subdivision that is five acres or more in size; or

   b. A site development plan or master development plan for a project that is five acres or more in size on property that is zoned SU-1 Special Use, IP Industrial Park, an SU-2 zone that requires site plan review, PC Planned Community with a site, or meets the Zoning Code definition of a Shopping Center must first obtain either a Certificate of No Effect or a Certificate of Approval from the City Archaeologist. Details of the requirements for a Certificate of No Effect or a Certificate of Approval are described in the ordinance. Failure to obtain a certificate as required by ordinance shall subject the property owner to the penalties of §1-1-99 ROA 1994.

2. If municipal excavation and/or construction projects implementing requirements of this permit will result in the disturbance of previously undisturbed land, and the project is not required to have a separate NPDES permit (e.g. general permit for discharge of stormwater associated with construction activity), then the permittee may seek authorization for stormwater discharges from such sites of disturbance by:

   a. Submitting, thirty (30) days prior to commencing land disturbance, the following to the State Historic Preservation Officer (SHPO) and to appropriate Tribes and Tribal Historic Preservation Officers for evaluation of possible effects on properties listed or eligible for listing on the National Register of Historic Places:

      (i) A description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground, and

      (ii) A copy of a USGS topographic map outlining the location of the project and other ancillary impact areas.

      (iii) The addresses of the SHPO. Sandia Pueblo, and Isleta Pueblo are:

      State Historic Preservation Officer
      New Mexico Historic Preservation Division

Bataan Memorial Building
407 Galisteo Street, Ste. 236
Santa Fe, New Mexico 87501

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Daniel Waseta, Director
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

3. If the permittee receives a request for an archeological survey or notice of adverse effects from the SHPO, the permittee shall delay such activity until:

   a. A cultural resource survey report has been submitted to the SHPO for a review and a determination of no effect or no adverse effect has been made, and

   b. If an adverse effect is anticipated, measures to minimize harm to historic properties have been agreed upon between the permittee and the SHPO.

4. If the permittee does not receive notification of adverse effects or a request for an archeological survey from the SHPO within thirty (30) days, the permittee may proceed with the activity.

5. Alternately, the permittee may obtain authorization for stormwater discharges from such sites of disturbance by applying for a modification of this permit. The permittee may apply for a permit modification by submitting the following information to the Permitting Authority 180 days prior to commencing such discharges:

   a. A letter requesting a permit modification to include discharges from activities subject to this provision, in accordance with the signatory requirements in Part IV.H.

   b. A description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground; County in which the facility will be constructed; type of facility to be constructed; size area (in acres) that the facility will encompass; expected date of construction; and whether the facility is located on land owned or controlled by any political subdivision of New Mexico; and

   c. A copy of a USGS topographic map outlining the location of the project and other ancillary impact areas.

V. **CONTINUATION OF THE EXPIRED GENERAL PERMIT**. If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time the permittee must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or

2. Issuance of an individual permit for your discharges; or

3. A formal permit decision by the permitting authority not to reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

W. **PERMIT TRANSFERS**: This permit is not transferable to any person except after notice to the permitting authority. The permitting authority may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

X. **ANTICIPATED NONCOMPLIANCE**. The permittee must give advance notice to the permitting authority of any planned changes in the permitted small MS4 or activity which may result in noncompliance with this permit. (see

Y. **PROCEDURES FOR MODIFICATION OR REVOCATION**: Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5.

PART V. PERMIT MODIFICATION

A. MODIFICATION OF THE PERMIT. The permit may be reopened and modified, in accordance with 40 CFR §122.62, §122.63, and §124.5, during the life of the permit to address:

1. Changes in the State's Water Quality Management Plan, including Water Quality Standards;

2. Changes in applicable water quality standards, statutes or regulations;

3. A new permittee who is the owner or operator of a portion of the MS4;

4. Changes in portions of the SWMP that are considered permit conditions;

5. Construction activities implementing requirements of this permit that will result in the disturbance of previously undisturbed land and not required to have a separate NPDES permit; or

6. Other modifications deemed necessary by the EPA to meet the requirements of the Act.

B. MODIFICATION OF THE SWMP(s). Only those portions of the SWMPs specifically required as permit conditions shall be subject to the modification requirements of 40 CFR §124.5. Addition of components, controls, or requirements by the permittee(s); replacement of an ineffective or infeasible control implementing a required component of the SWMP with an alternate control expected to achieve the goals of the original control; and changes required as a result of schedules contained in Part VI shall be considered minor changes to the SWMP and not modifications to the permit. (See also Part I.D.6)

C. CHANGES IN REPRESENTATIVE MONITORING SITES. Changes in monitoring sites, other than those with specific numeric effluent limitations (as described in Part III.A.1.g), shall be considered minor modifications to the permit and shall be made in accordance with the procedures at 40 CFR §122.63.

PART VI. SCHEDULES FOR IMPLEMENTATION AND COMPLIANCE.

A. IMPLEMENTATION AND AUGMENTATION OF THE SWMP(s). The permittee(s) shall comply with all elements identified in Parts I and III for SWMP implementation and augmentation, and permit compliance. The EPA shall have sixty (60) days from receipt of a modification or augmentation made in compliance with Part VI to provide comments or request revisions. During the initial review period, EPA may extend the time period for review and comment. The permittee(s) shall have thirty (30) days from receipt of the EPA's comments or required revisions to submit a response. All changes to the SWMP or monitoring plans made to comply with schedules in Parts I and III must be approved by EPA prior to implementation.

B. COMPLIANCE WITH EFFLUENT LIMITATIONS. Reserved.

C. REPORTING COMPLIANCE WITH SCHEDULES. No later than fourteen (14) days following a date for a specific action (interim milestone or final deadline) identified in the Part VI schedule(s), the permittee(s) shall submit a written notice of compliance or noncompliance to the EPA in accordance with Part III.D.

D. MODIFICATION OF THE SWMP(s). The permittee(s) shall modify its SWMP, as appropriate, in response to modifications required in Part VI.A. Such modifications shall be made in accordance with Part V.B.

PART VII. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Unless otherwise specified, additional definitions of words or phrases used in this permit are as follows:

(1) **Baseline Load** means the load for the pollutant of concern which is present in the waterbody before BMPs or other water quality improvement efforts are implemented.

(2) **Best Management Practices (BMPs)** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(3) **Bioretention** means the water quality and water quantity stormwater management practice using the chemical, biological and physical properties of plants, microbes and soils for the removal of pollution from stormwater runoff.

(4) **Canopy Interception** means the interception of precipitation, by leaves and branches of trees and vegetation that does not reach the soil.

(5) **Contaminated Discharges:** The following discharges are considered contaminated:

- Has had a discharge resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at any time since November 16, 1987; or
- Has had a discharge resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or
- Contributes to a violation of an applicable water quality standard**.**

(6) **Controls** or **Control Measures** or **Measures** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or control the pollution of waters of the United States. Controls also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(7) **Controllable Sources**: Sources, private or public, which fall under the jurisdiction of the MS4.

(8) **CWA** or **The Act** means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

(9) **Co-permittee** means a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator.

(10) **Composite Sample** means a sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

(11) **Core Municipality** means, for the purpose of this permit, the municipality whose corporate boundary (unincorporated area for counties and parishes) defines the municipal separate storm sewer system. (ex. City of Dallas for the Dallas Municipal Separate Storm Sewer System, Harris County for unincorporated Harris County).

(12) **Direct Connected Impervious Area (DCIA)** means the portion of impervious area with a direct hydraulic connection to the permitee's municipal separate storm sewer system or a waterbody via continuous paved surfaces, gutters, pipes, and other impervious features. Direct connected impervious area typically does not include isolated impervious areas with an indirect hydraulic connection to the municipal separate storm sewer system (e.g., swale or detention basin) or that otherwise drain to a pervious area.

(13) **Director** means the Regional Administrator or an authorized representative.

(14) **Discharge** for the purpose of this permit, unless indicated otherwise, means discharges from the municipal separate storm sewer system.

(15) **Discharge-related activities"** include: activities which cause, contribute to, or result in storm water point source pollutant discharges; and measures to control storm water discharges, including the sitting, construction and operation of best management practices (BMPs) to control, reduce or prevent storm water pollution.

(16) **Engineered Infiltration** means an underground device or system designed to accept stormwater and slowly exfiltrates it into the underlying soil. This device or system is designed based on soil tests that define the exfiltration rate.

(17) **Evaporation** means rainfall that is changed or converted into a vapor.

(18) **Evapotranspiration** means the sum of evaporation and transpiration of water from the earth's surface to the atmosphere. It includes evaporation of liquid or solid water plus the transpiration of plants.

(19) **Extended Filtration** means a structural stormwater practice which filters stormwater runoff through vegetation and engineered soil media. A portion of the stormwater runoff drains into an underdrain system which slowly releases it after the storm is over.

(20) **Facility** means any NPDES "point source" or any other facility (including land or appurtenances thereto) that is subject to regulation under the NPDES program.
(21) **Flood Control Projects** mean major drainage projects developed to control water quantity rather than quality, including channelization and detention.
(22) **Flow-weighted composite sample** means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.
(23) **Grab Sample** means a sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time.
(24) **Green Infrastructure** means an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. As a general principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff. When used as components of a stormwater management system, Green Infrastructure practices such as green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these technologies can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits.
(25) **Hydromodification** means the alteration of the natural flow of water through a landscape, and often takes the form of channel straightening, widening, deepening, or relocating existing, natural stream channels. It also can involve excavation of borrow pits or canals, building of levees, streambank erosion, or other conditions or practices that change the depth, width or location of waterways. Hydromodification usually results in water quality and habitat impacts.
(26) **Illicit connection** means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.
(27) **Illicit discharge** means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.
(28) **Impervious Area (IA)** means conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops.
(29) **Indian Country** means:
   a. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;
   b. All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and
   c. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.
(30) **Individual Residence** means, for the purposes of this permit, single or multi-family residences. (e.g. single family homes and duplexes, town homes, apartments, etc.)
(31) **Infiltration** means the process by which stormwater penetrates the soil.
(32) **Land application unit** means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
(33) **Landfill** means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
(34) **Land Use** means the way in which land is used, especially in farming and municipal planning.
(35) **Large or medium municipal separate storm sewer system** means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendix F of 40 CFR §122); or (ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR §122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.
(36) **MEP** means maximum extent practicable, the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges. A discussion of MEP as it applies to small MS4s is found at 40 CFR 122.34. CWA section 402(p)(3)(B)(iii) requires that a municipal permit "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system design, and engineering methods, and other provisions such as the Administrator or the State determines appropriate for the control of such pollutants.
(37) **Measurable Goal** means a quantitative measure of progress in implementing a component of storm water management program.

(38) **Municipal Separate Storm Sewer (MS4)** means all separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to paragraphs 40 CFR §122.26(b)(4), (b)(7), and (b)(16), or designated under paragraph 40 CFR §122.26(a)(1)(v).

(39) **Non-traditional MS4** means systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings. 40 CFR 122.26(a)(16)(iii).

(40) **NOI** means Notice of Intent to be covered by this permit (see Part I.B of this permit)

(41) **NOT** means Notice of Termination.

(42) **Outfall** means a *point source* as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.

(43) **Percent load reduction** means the difference between the baseline load and the target load divided by the baseline load.

(44) **Owner or operator** means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

(45) **Permittee** refers to any person (defined below) authorized by this NPDES permit to discharge to Waters of the United States.

(46) **Permitting Authority** means EPA, Region 6.

(47) **Person** means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

(48) **Point Source** means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

(49) **Pollutant** is defined at 40 CFR 122.2. Pollutant means dredged spoil, solid waste, incinerator residue, filter back-wash, sewage, garbage, sewage sludge. Munitions, chemical waste, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011), heat, wrecked or discarded equipment, rock sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

(50) **Pre-development Hydrology**, Predevelopment hydrology is generally the rain volume at which runoff would be produced when a site or an area is in its natural condition, prior to development disturbances. For the Middle Rio Grande area, EPA considers predevelopment conditions to be a mix of woods and desert shrub.

(51) **Rainfall and Rainwater Harvesting** means the collection, conveyance, and storage of rainwater. The scope, method, technologies, system complexity, purpose, and end uses vary from rain barrels for garden irrigation in urban areas, to large-scale collection of rainwater for all domestic uses.

(52) **Soil amendment** means adding components to in-situ or native soils to increase the spacing between soil particles so that the soil can absorb and hold more moisture. The amendment of soils changes various other physical, chemical and biological characteristics so that the soils become more effective in maintaining water quality.

(53) **Storm drainage projects** include stormwater inlets, culverts, minor conveyances and a host of other structures or devices.

(54) **Storm sewer**, unless otherwise indicated, means a municipal separate storm sewer.

(55) **Stormwater** means stormwater runoff, snow melt runoff, and surface runoff and drainage.

(56) **Stormwater Discharge Associated with Industrial Activity** means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant (See 40 CFR §122.26(b)(14) for specifics of this definition).

(57) **Target load** means the load for the pollutant of concern which is necessary to attain water quality goals (e.g. applicable water quality standards).

(58) **Stormwater Management Program (SWMP)** means a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system. For the purposes of this permit, the Stormwater Management Program is considered a single document, but may actually consist of separate programs (e.g. "chapters") for each permittee.

(59) **Targeted controls** means practices implemented to address particular pollutant of concern. For example litter program targets floatables.

(60) **Time-weighted composite** means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

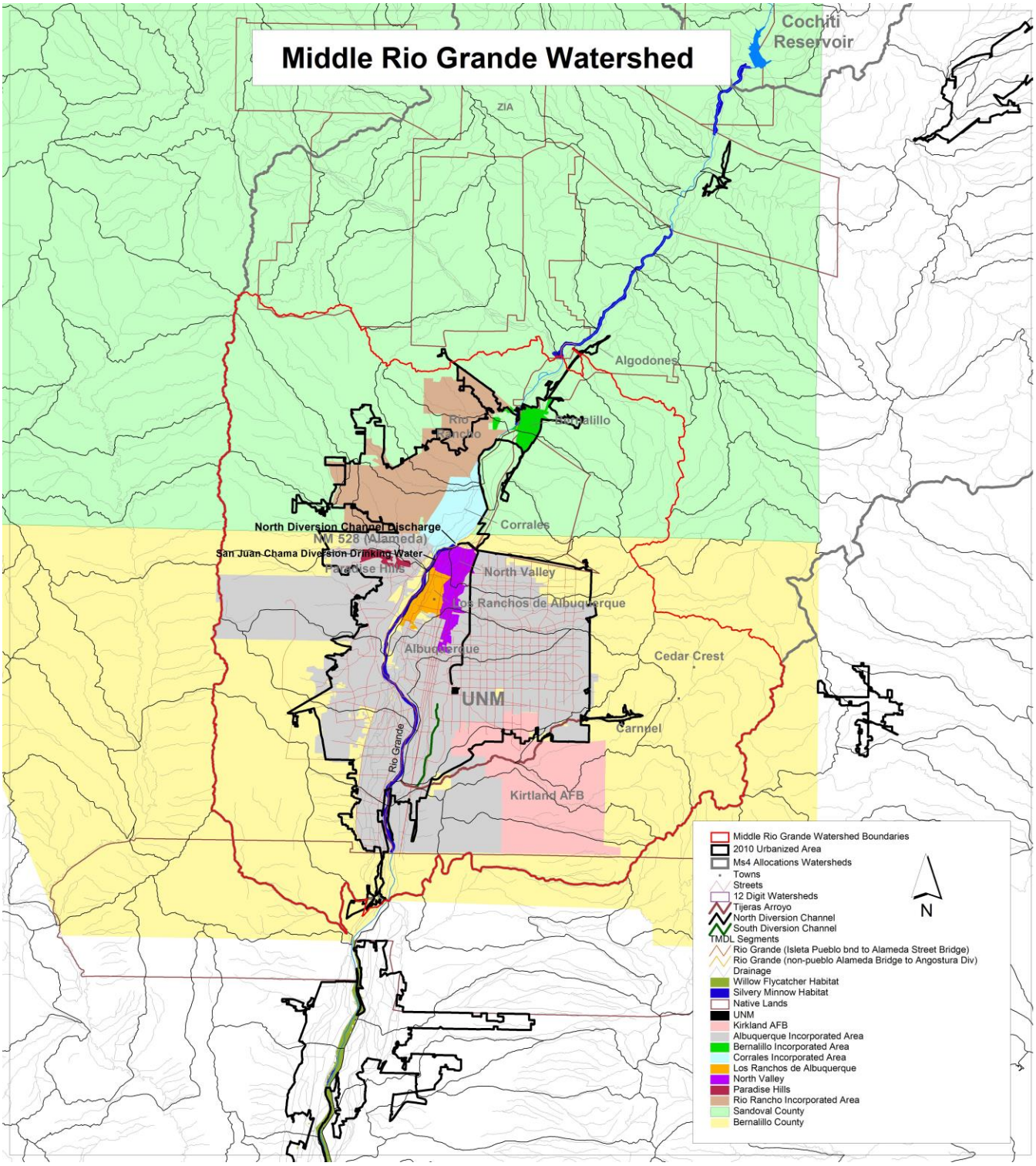
(61) **Total Maximum Daily Load (TMDL)** means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. A TMDL is the sum of individual wasteload allocations for point sources (WLA), load allocations for non-point sources and natural background (LA), and must consider seasonal variation and include a margin of safety. The TMDL comes in the form of a technical document or plan.

(62) **Toxicity** means an LC50 of <100% effluent.
(63) **Waste load allocation (WLA)** means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.
(64) **Wetlands** means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
(65) **Whole Effluent Toxicity (WET)** means the aggregate toxic effect of an effluent measured directly by a toxicity test.

PART VIII PERMIT CONDITIONS APPLICABLE TO SPECIFIC AREAS OR INDIAN COUNTY LANDS

Reserved

Appendix A - Middle Rio Grande Watershed Jurisdictions and Potential Permittees



Middle Rio Grande Watershed Jurisdictions and Potential Permittees

Class A:
City of Albuquerque
AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Authority)
UNM (University of New Mexico)
NMDOT (New Mexico Department of Transportation District 3)

Class B:
Bernalillo County
Sandoval County
Village of Corrales
City of Rio Rancho
Los Ranchos de Albuquerque
KAFB (Kirtland Air Force Base)
Town of Bernalillo
EXPO (State Fairgrounds/Expo NM)
SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority)
NMDOT (New Mexico Department of Transportation District 3)

Class C:
ESCAFCA (Eastern Sandoval County Arroyo Flood Control Authority)
Sandia Labs (DOE)

Class D:
Pueblo of Sandia
Pueblo of Isleta
Pueblo of Santa Ana

Note: There could be additional potential permittees.
NMDOT Dist. 3 falls into the Class A type permittee, if an individual program is developed or/and implemented. The timelines for cooperative programs should be used, if NMDOT Dist. 3 cooperates with other permittees.

Appendix B - Total Maximum Daily Loads (TMDLs)

B.1. Approved Total Maximum Daily Loads (TMDLs) Tables

A bacteria TMDL for the Middle Rio Grande was approved by the New Mexico Water Quality Control Commission on April 13, 2010, and by EPA on June 30, 2010. The new TMDL modifies: 1) the indicator parameter for bacteria from fecal coliform to *E. coli*, and 2) the way the WLAs are assigned

Discharges to Impaired Waters – TMDL Waste Load Allocations (WLAs)[2] for *E. coli*: Rio Grande[1]

Stream Segment	Stream Name	Permittee Class	FLOW CONDITIONS & ASSOCIATED WLA (cfu/day)[3]				
			High	Moist	Mid-Range	Dray	Low
2105_50	Isleta Pueblo boundary to Alameda Street Bridge (based on flow at USGS Station NM08330000)	Class A [4]	$3.36x10^{10}$	$8.41 x10^{10}$	$5.66 x10^{10}$	$2.09 x10^{10}$	$4.67 x10^{9}$
		Class B[5] Class C[6]	$3.73 x10^{9}$	$9.35 x10^{9}$	$6.29 x10^{9}$	$2.32 x10^{9}$	$5.19 x10^{8}$
2105.1_00	non-Pueblo Alameda Bridge to Angostura Diversion (based on flow at USGS Station NM08329928)	Class A	$5.25 x10^{10}$	$1.52 x10^{10}$	_	$5.43 x10^{9}$	$2.80 x10^{9}$
		Class B Class C	$2.62 x10^{11}$	$7.59 x10^{10}$	_	$2.71 x10^{10}$	$1.40 x10^{10}$

1 Total Maximum Daily Load for the Middle Rio Grande Watershed, NMED, 2010.
2 The WLAs for the stormwater MS4 permit was based on the percent jurisdiction area approach. Thus, the MS4 WLAs are a percentage of the available allocation for each hydrologic zone, where the available allocation = TMDL – WLA – MOS.
3 Flow conditions relate to percent of days the flow in the Rio Grande at a USGS Gauge exceeds a particular level: High 0-10%; Moist 10-40%; Mid-Range 40-60%; Dry 60-90%; and Low 90-100%. (Source: Figures 4.3 and 4.4 in 2010 Middle Rio Grande TMDL)
4 Phase I MS4s
5 Phase II MS4s (2000 Census)
6 New Phase II MS4s (2010 Census or MS4s designated by the Director)

Estimating Target Loadings for Particular Monitoring Location:

The Table in B.2 below provides a mechanism to calculate, based on acreage within a drainage area, a target loading value for a particular monitoring location.

B.2. Calculating Alternative Sub-measurable Goals

Individual permittees or a group of permittees seeking alternative sub-measureable goals under C.2.b.(i).(c).B should consult NMED. Preliminary proposals should be submitted with the Notice of Intent (NOI) under Part I.B.2.k according to the due dates specified in Part I.B.1.a of the permit. This proposal shall include, but is not limited to, the following items

B.2.1 **Determine base loading for subwatershed areas consistent with TMDL**

a. Using the table below, the permittee must develop a target load consistent with the TMDL for any sampling point in the watershed (even if it includes area outside the jurisdictional area of the permit).

E. coli loading on a per area basis (cfu/sq mi/day)

	high	moist	mid	dry	low
Alameda to Isleta	1.79E+09	4.48E+08	3.02E+08	1.11E+08	2.58E+07
Angostura to Alameda	3.25E+09	9.41E+08	5.19E+08	3.37E+08	1.74E+08

b. An estimation of the pertinent, subwatershed area that the permittee is responsible for and the basis for determining that area, including the means for excluding any tributary inholdings;

c. Using the total loading for the watershed (from part a) and the percentage of the watershed area that is part of the permitee(s) jurisdiction (part b) to calculate a base WLA for this subwatershed.

B.2.2 Set Alternative subwatershed targets

a. Permittee(s) may reallocate WLA within and between subwatershed based on factors including:

- Population density within the pertinent watershed area;
- Slope of the waterway;
- Percent impervious surface and how that value was determined;
- Stormwater treatment, installation of green infrastructure for the control or treatment of stormwater and stormwater pollution prevention and education programs within specific watersheds

b. A proposal for an alternative subwatershed target must include the rationale for the factor(s) used

B.2.3 Ensure overall compliance with TMDL WLA allocation

The permitee(s) will provide calculations demonstrating the total WLA under the alternative proposed in (Part II) is consistent with the baseline calculated in (Part I) based on their total jurisdictional area. Permittee(s) will not be allowed to allocate more area within the watershed than is accorded to them under their jurisdictional area. For permittees that work cooperatively, WLA calculations may be combined and used where needed within the sub-watershed amongst the cooperating parties.

WLA calculations must be sent as part of the Notice of Intent to EPA via e-mail at R6_MS4Permits@epa.gov. These calculations must also be sent to:

Sarah Holcomb
Industrial and Stormwater Team Leader
NMED Surface Water Quality Bureau
P.O. Box 5469,

Appendix C - Historic Properties Eligibility Procedures

MS4 operators must determine whether their MS4's storm water discharges, allowable non-storm water discharges, or construction of best management practices (BMPs) to control such discharges, have potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places.

For existing dischargers who do not need to construct BMPs for permit coverage, a simple visual inspection may be sufficient to determine whether historic properties are affected. However, for MS4s which are new storm water dischargers and for existing MS4s which are planning to construct BMPs for permit eligibility, MS4 operators should conduct further inquiry to determine whether historic properties may be affected by the storm water discharge or BMPs to control the discharge. In such instances, MS4 operators should first determine whether there are any historic properties or places listed on the National Register or if any are eligible for listing on the register (e.g., they are "eligible for listing").

Due to the large number of entities seeking coverage under this permit and the limited number of personnel available to State and Tribal Historic Preservation Officers nationwide to respond to inquiries concerning the location of historic properties, EPA suggests that MS4 operators first access the "National Register of Historic Places" information listed on the National Park Service's web page (www.nps.gov/nr/). Addresses for State Historic Preservation Officers and Tribal Historic Preservation Officers are listed in Parts II and III of this appendix, respectively. In instances where a Tribe does not have a Tribal Historic Preservation Officer, MS4 operators should contact the appropriate Tribal government office when responding to this permit eligibility condition. MS4 operators may also contact city, county or other local historical societies for assistance, especially when determining if a place or property is eligible for listing on the register. Tribes that do not currently reside in an area may also have an interest in cultural properties in areas they formerly occupied. Tribal contact information is available at http://www.epa.gov/region06/6dra/oejta/tribalaffairs/index.html

The following three scenarios describe how MS4 operators can meet the permit eligibility criteria for protection of historic properties under this permit:

(1) If historic properties are not identified in the path of an MS4's storm water and allowable non-storm water discharges or where construction activities are planned to install BMPs to control such discharges (e.g., diversion channels or retention ponds), then the MS4 operator has met the permit eligibility criteria under Part I.A.3.b.(i).

(2) If historic properties are identified but it is determined that they will not be affected by the discharges or construction of BMPs to control the discharge, the MS4 operator has met the permit eligibility criteria under Part.I.A.3.b.(ii).

(3) If historic properties are identified in the path of an MS4's storm water and allowable non-storm water discharges or where construction activities are planned to install BMPs to control such discharges, and it is determined that there is the potential to adversely affect the property, the MS4 operator can still meet the permit eligibility criteria under Part I.A.3.b.(ii) if he/she obtains and complies with a written agreement with the appropriate State or Tribal Historic Preservation Officer which outlines measures the MS4 operator will follow to mitigate or prevent those adverse effects. The operator should notify EPA before exercising this option.

The contents of such a written agreement must be included in the MS4's Storm Water Management Program.

In situations where an agreement cannot be reached between an MS4 operator and the State or Tribal Historic Preservation Officer, MS4 operators should contact EPA for assistance.

The term "adverse effects" includes but is not limited to damage, deterioration, alteration or destruction of the historic property or place. EPA encourages MS4 operators to contact the appropriate State or Tribal Historic Preservation Officer as soon as possible in the event of a potential adverse effect to a historic property.

MS4 operators are reminded that they must comply with applicable State, Tribal and local laws concerning the protection of historic properties and places.

I. Internet Information on the National Register of Historic Places
An electronic listing of the ``National Register of Historic Places," as maintained by the National Park Service on its National Register Information System (NRIS), can be accessed on the Internet at www.nps.gov/nr/.

II. State Historic Preservation Officers (SHPO)
SHPO List for areas covered by the permit:

NEW MEXICO
Historic Preservation Div, Office of Cultural Affairs
Bataan Memorial Building, 407 Galisteo Street, Suite 236
Santa Fe, NM 87501
505-827-6320 FAX: 505-827-6338

III. Tribal Historic Preservation Officers
(THPO)
In instances where a Tribe does not have a Tribal Historic Preservation Officer, please contact the appropriate Tribal government office when responding to this permit eligibility condition.

Tribal Historic Preservation Officers:
Mescalero Apache Tribe
P.O. Box 227
Mescalero, New Mexico 88340

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

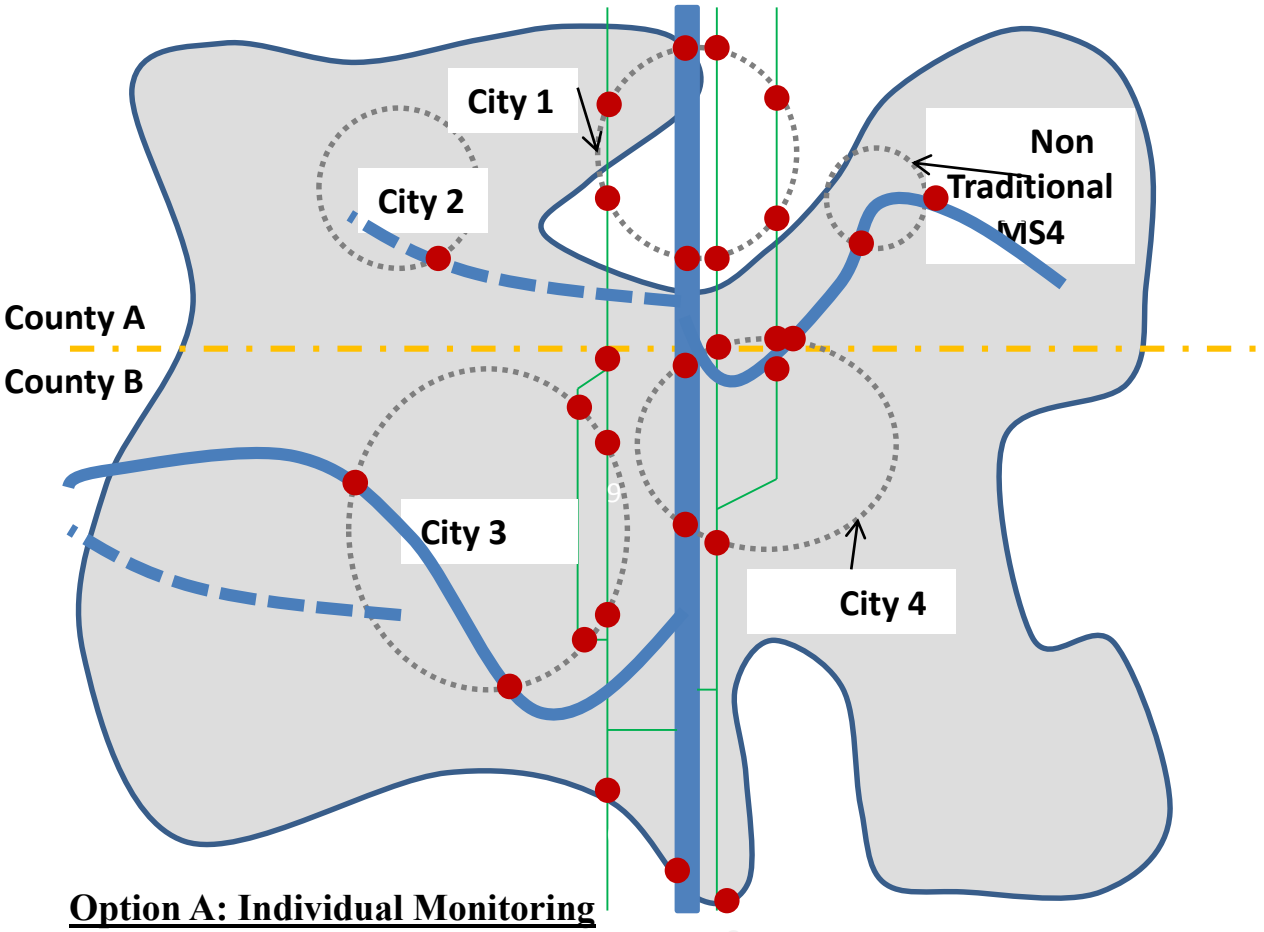
Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Dr. Henry Walt, THPO
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

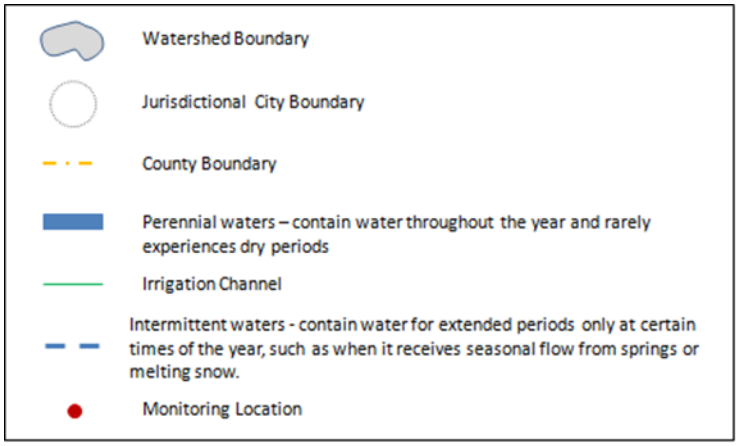
For more information:
National Association of Tribal Historic
Preservation Officers
P.O. Box 19189
Washington, DC 20036-9189
Phone: (202) 628-8476
Fax: (202) 628-2241

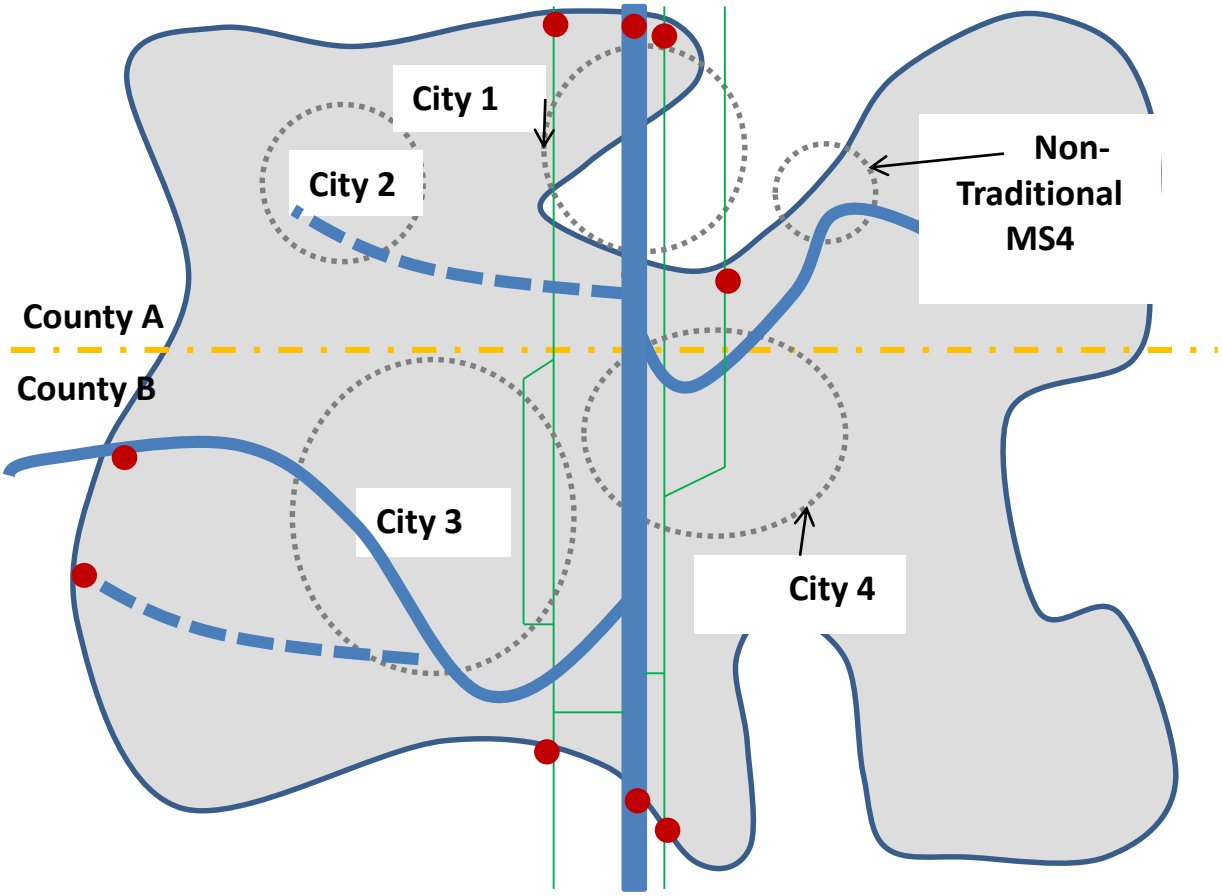
IV. Advisory Council on Historic Preservation
Advisory Council on Historic Preservation, 1100 Pennsylvania Avenue, NW., Suite 803, Washington, DC 20004 Telephone: (202) 606-8503, Fax: (202) 606-8647/8672, E-mail: achp@achp.gov

Appendix D - Suggested Initial Phase Sampling Location Concepts – Wet Weather Monitoring

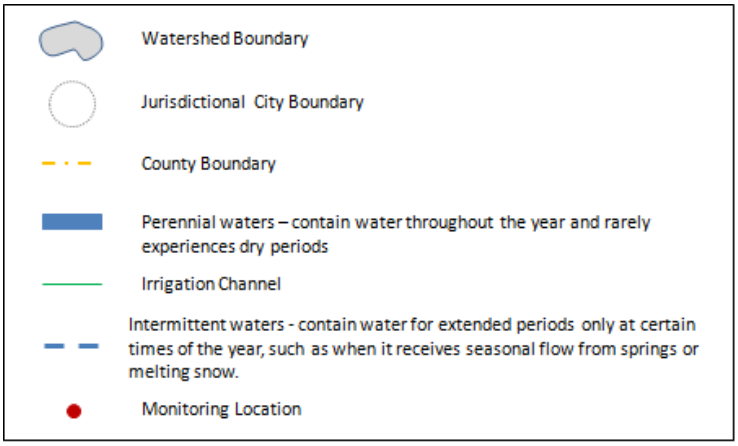


Option A: Individual Monitoring





Option B: Cooperative Monitoring



Appendix E - Providing Comments or Requesting a Public Hearing on an MS4 Operator's NOI

NOTE: Appendix E is for public information only and does not impose conditions on the permittee.

Any interested person may provide comments or request a public hearing on a Notice of Intent (NOI) submitted under this general permit. The general permit itself is not reopened for comment during the period an NOI is available for review and comment.

A. How Will I Know A MS4 is Filing an NOI and How Can I Get a Copy?
The permittee is required to provide a local public notice that they are filing an NOI and make a copy of the draft NOI submittal available locally. EPA will put basic information from all NOIs received on the Internet at: **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm .** You may contact the listed MS4 representative for local access to the NOI. You may also request a copy from EPA by contacting Ms. Dorothy Brown at 214-665-8141 or **brown.dorothy@epa.gov** or via mail at the Address in Item D below, attention Dorothy Brown.

B. When Can I File Comments or a Hearing Request?
You can file comments and/or request a hearing as soon as a NOI is filed, but your request must be postmarked or physically received by EPA within thirty (30) calendar days of the date the NOI is posted on the web site in Section A.

C. How Do I File Comments or Make My Hearing Request?
Your comments and/or hearing request must be in writing and must state the nature of the issues proposed to be raised in the hearing. You should be as specific as possible and include suggested remedies where possible. You should include any data supporting your position(s). If you are submitting the request on behalf of a group or organization, you should describe the nature and membership of the group or organization. Electronic format comments in MS-WORD or PDF format are preferred.

D. Where Do I Send Copies of My Comments or Hearing Request?
Electronic Format: Submit one copy of your comments or hearing request via e-mail to Ms. Dorothy Brown at **brown.dorothy@epa.gov** and copy the Operator of the MS4 at the address on the NOI (send hard copy to MS4 Operator if no e-mail address provided). You may also submit via compact disk or diskette formatted for PCs to addresses for hard copy below. (Hard Copy: You must send an original and one copy of your comments or hearing request to EPA at the address below and a copy to the Operator of the MS4 at the address provided on the NOI)

U.S. EPA Region 6
Water Quality Protection Division (6WQ-NP)
Attn: Dorothy Brown
1445 Ross Ave., Suite 1200
Dallas, TX 75202

E. How Will EPA Determine Whether or Not To Hold a Public Hearing?
EPA will evaluate all hearing requests received on an NOI to determine if a significant degree of public interest exists and whether issues raised may warrant clarification of the MS4 Operator's NOI submittal. EPA will hold a public hearing if a significant amount of public interest is evident. EPA may also, at the Agency's discretion, hold either a public hearing or an informal public meeting to clarify issues related to the NOI submittal. EPA may hold a single public hearing or public meeting covering more than one MS4 (e.g., for all MS4s in an Urbanized Area, etc.).

F. How Will EPA Announce a Pubic Hearing or Public Meeting?
EPA will provide public notice of the time and place for any public hearing or public meeting in a major newspaper with local distribution and via the Internet at **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm**.

G. What Will EPA Do With Comments on an NOI?
EPA will take all comments made directly or in the course of a public hearing or public meeting into consideration in determining whether or not the MS4 that submitted the NOI is appropriately covered under the general permit. The MS4 operator will have the opportunity to provide input on issues raised. The Director may require the MS4 operator to supplement or amend the NOI submittal in order to be authorized under the general permit or may direct the MS4 Operator to submit an individual permit application. A summary of issues raised and EPA's responses will be made available online at **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm.** A hard copy may also be requested by contacting Ms. Dorothy Brown (see paragraph D)

Appendix F - Minimum Quantification Levels (MQL's)

The following Minimum Quantification Levels (MQL's) are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
METALS, RADIOACTIVITY, CYANIDE and CHLORINE			
Aluminum	2.5	Molybdenum	10
Antimony	60	Nickel	0.5
Arsenic	0.5	Selenium	5
Barium	100	Silver	0.5
Beryllium	0.5	Thalllium	0.5
Boron	100	Uranium	0.1
Cadmium	1	Vanadium	50
Chromium	10	Zinc	20
Cobalt	50	Cyanide	10
Copper	0.5	Cyanide, weak acid dissociable	10
Lead	0.5	Total Residual Chlorine	33
Mercury (*)	0.0005 0.005		
DIOXIN			
2,3,7,8-TCDD	0.00001		
VOLATILE COMPOUNDS			
Acrolein	50	1,3-Dichloropropylene	10
Acrylonitrile	20	Ethylbenzene	10
Benzene	10	Methyl Bromide	50
Bromoform	10	Methylene Chloride	20
Carbon Tetrachloride	2	1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10	Tetrachloroethylene	10
Clorodibromomethane	10	Toluene	10
Chloroform	50	1,2-trans-Dichloroethylene	10
Dichlorobromomethane	10	1,1,2-Trichloroethane	10
1,2-Dichloroethane	10	Trichloroethylene	10
1,1-Dichloroethylene	10	Vinyl Chloride	10
1,2-Dichloropropane	10		
ACID COMPOUNDS			
2-Chlorophenol	10	2,4-Dinitrophenol	50
2,4-Dichlorophenol	10	Pentachlorophenol	5
2,4-Dimethylphenol	10	Phenol	10
4,6-Dinitro-o-Cresol	50	2,4,6-Trichlorophenol	10

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
		BASE/NEUTRAL	
Acenaphthene	10	Dimethyl Phthalate	10
Anthracene	10	Di-n-Butyl Phthalate	10
Benzidine	50	2,4-Dinitrotoluene	10
Benzo(a)anthracene	5	1,2-Diphenylhydrazine	20
Benzo(a)pyrene	5	Fluoranthene	10
3,4-Benzofluoranthene	10	Fluorene	10
Benzo(k)fluoranthene	5	Hexachlorobenzene	5
Bis(2-chloroethyl)Ether	10	Hexachlorobutadiene	10
Bis(2-chloroisopropyl)Ether	10	Hexachlorocyclopentadiene	10
Bis(2-ethylhexyl)Phthalate	10	Hexachloroethane	20
Butyl Benzyl Phthalate	10	Indeno(1,2,3-cd)Pyrene	5
2-Chloronapthalene	10	Isophorone	10
Chrysene	5	Nitrobenzene	10
Dibenzo(a,h)anthracene	5	n-Nitrosodimethylamine	50
1,2-Dichlorobenzene	10	n-Nitrosodi-n-Propylamine	20
1,3-Dichlorobenzene	10	n-Nitrosodiphenylamine	20
1,4-Dichlorobenzene	10	Pyrene	10
3,3'-Dichlorobenzidine	5	1,2,4-Trichlorobenzene	10
Diethyl Phthalate	10		
		PESTICIDES AND PCBS	
Aldrin	0.01	Beta-Endosulfan	0.02
Alpha-BHC	0.05	Endosulfan sulfate	0.02
Beta-BHC	0.05	Endrin	0.02
Gamma-BHC	0.05	Endrin Aldehyde	0.1
Chlordane	0.2	Heptachlor	0.01
4,4'-DDT and derivatives	0.02	Heptachlor Epoxide	0.01
Dieldrin	0.02	PCBs **	0.2
Alpha-Endosulfan	0.01	Toxaphene	0.3

(MQL's Revised November 1, 2007)

(*) Default MQL for Mercury is 0.005 unless Part I of your permit requires the more sensitive Method 1631 (Oxidation / Purge and Trap / Cold vapor Atomic Fluorescence Spectrometry), then the MQL shall be 0.0005.

(**) EPA Method 1668 should be utilized when PCB water column monitoring is conducted to determine compliance with permit requirements. Either the Arochlor test (EPA Method 8082) or USGS test method (8093) may be utilized for purposes of sediment sampling as part of a screening program, but must use EPA Method 1668 (latest revision) for confirmation and determination of specific PCB levels at that location.

Appendix G – Oxygen Saturation and Dissolved Oxygen Concentrations North Diversion Channel Area

Concentrations of dissolved oxygen in water at various atmospheric pressures and temperatures with 100 percent oxygen saturation, 54.3 percent oxygen saturation (associated with hypoxia and harassment of silvery minnows), and 8.7 percent oxygen saturation (associated with anoxia and lethality of silvery minnows) at the North Diversion Channel (NDC) (based on USGS DO website <http://water.usgs.gov/software/DOTABLES/> for pressures between 628 to 648 millimeters of mercury (Hg)). Source: Biological Consultation Cons. #22420-2011-F-0024-R001

Water temp.	100°/o Oxygen Saturation at NDC			54.3% saturation = Harassmen			8.7% saturation= 50%Lethality		
("C)	628mmHg	638mmHg	648mmHg	628mmHg	638mmHg	648mmHg	628mmHg	638mmHg	64BmmHg
0	12.1	12.3	12.5	66	6.7	6.8	1.1	1.1	1.1
1	11.7	11.9	12.1	64	6.5	6.6	1.0	1.0	11
2	11.4	11.6	11.8	6.2	6.3	8.4	1.0	1.0	1.0
▼	11.1	11.3	11.5	6.0	6.1	6.2	1.0	1.0	1.0
4	10.8	11	11.2	5.9	6.0	6.1	0.9	1.0	1.0
5	10.5	10.7	10.9	5.7	5.8	59	0.9	0.9	0.9
6	10.3	10.4	10.6	5.6	5.8	5.0	0.9	0.9	0.9
7	10	10.2	10.3	5.4	5.5	5.6	0.9	09	0.9
8	9.8	9.9	10.1	5.3	5.4	5.5	0.9	0.9	0.9
8	9.5	9.7	9.6	52	53	5.3	08	0.8	0.9
▼▼	93	9.5	96	50	5.2	5.2	0.0	0.8	0.8
11	9.1	9.2	9.4	4.9	5.0	5.1	0.8	0.8	08
12	8.9	9	9.2	4.8	4.9	5.0	0.8	0.8	08
13	8.7	8.8	9	4.7	4.8	4.9	0.8	0.8	0.8
14	8.5	8.6	8.8	4.8	4.7	4.8	0.7	0.7	0.0
15	8.3	8.4	8.8	4.5	4.6	4.7	0.7	0.7	0.7
16	0.1	83	0.4	4.4	4.5	4.6	07	0.7	0.7
17	8	8.1	8.2	4.3	4.4	4.5	0.7	0.7	0.7
16	7.8	7.9	8	4.2	43	43	07	0.7	0.7
19	76	7.8	7.9	4.1	4.2	4.3	0.7	07	0.7
20	7.5	76	7.7	4.1	4.1	42	07	07	0.7
21	7.3	7.4	7.6	4.0	4.0	4.1	0.6	0.6	0.7
22	7.2	7.3	7.4	3.9	4.0	4.0	0.6	0.6	0.6
23	7	72	7.3	3.8	3.9	4.0	0.6	0.6	0.6
24	6.9	7	7.1	3.7	3.8	3.9	0.6	0.6	0.6
25	6.8	69	7	3.7	3.7	3.6	0.6	0.6	0.6
26	6.7	68	6.9	3.6	3.7	3.7	0.6	0.6	06
27	6.5	8.6	8.8	3.5	3.6	3.7	06	0.6	0.8
26	6.4	8.5	8.6	3.5	3.5	3.6	0.6	0.8	08
29	6.3	8.4	6.5	3.4	3.5	3.5	0.5	06	0.8
20	82	8.3	6.4	3.4	3.4	3.5	0.5	0.5	0.8
31	6.1	6.2	6.3	3.3	3.4	3.4	0.5	0.5	OS
32	6	6.1	6.2	3.3	3.3	34	0.5	0.5	0.5
33	5.0	6	6.1	3.2	3.3	3.3	0.5	0.5	0.5
34	5.8	5.9	6	3.1	3.2	3.3	0.5	0.5	0.5
	5.7	5.6	5.9	31	3.1	3.2	0.5	0.5	0.5

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the federal Clean Water Act, as amended, 33 U.S.C. §§1251 et seq., and the Massachusetts Clean Waters Act, as amended, Mass. Gen. Laws. ch. 21, §§26-53, the

Boston Water and Sewer Commission

is authorized to discharge from all of its new or existing separate storm sewers: **195 identified Separate Storm Sewer Outfalls and associated receiving waters are Listed in Attachment A** to receiving waters named: **Belle Island Inlet, Boston Harbor, Boston Inner Harbor, Brook Farm Brook, Bussey Brook, Canterbury Brook, Chandler's Pond, Charles River, Chelsea River, Cow Island Pond, Dorchester Bay, Fort Point Channel, Goldsmith Brook, Jamaica Pond, Little Mystic Channel, Mill Pond, Millers River, Mother Brook, Muddy River, Mystic River, Neponset River, Old Harbor, Patten's Cove, Reserved Channel, Sprague Pond, Stony Brook, Turtle Pond and unnamed wetlands, brooks and streams.**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective 30 days from date of signature.

This permit and the authorization to discharge expire at midnight, five years from the effective date.

This permit consists **of 20** pages and **Attachment A** in Part I including monitoring requirements, etc., and 35 pages in Part II including General Conditions and Definitions.

Signed this 29 day of September, 1999

Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

Director, Division of
Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I. MUNICIPAL SEPARATE STORM SEWER SYSTEM

A. DISCHARGES THROUGH THE MUNICIPAL SEPARATE STORM SEWER SYSTEM AUTHORIZED UNDER THIS PERMIT

1. Permit Area. This permit covers all areas within the corporate boundary of the City of Boston or otherwise contributing to new or existing separate storm sewers owned or operated by the Boston Water and Sewer Commission, the "permittee".

2. Authorized Discharges. This permit authorizes all storm water discharges to waters of the United States from all existing or new separate storm sewer outfalls owned or operated by the permittee (existing outfalls are identified in Attachment A). This permit also authorizes the discharge of storm water commingled with flows contributed by wastewater or storm water associated with industrial activity provided such discharges are authorized under separate NPDES permits and are in compliance with applicable Federal, State and Boston Water and Sewer Commission regulations (Regulations Regarding the Use of Sanitary and Combined Sewers and Storm Drains of the Boston Water and Sewer Commission). The permittee shall provide a notification to EPA and MA DEP of all new separate storm sewer outfalls as they are activated and of all existing outfalls which are de-activated. The annual report (Part I.E.) will reflect all of the changes to the number of outfalls throughout the year.

3. Limitations on Coverage. Discharges of non-storm water or storm water associated with industrial activity through outfalls listed at Attachment A are not authorized under this permit except where such discharges are:

   a. authorized by a separate NPDES permit; or

   b. identified by and in compliance with Part I.B.2.g.2 of this permit.

B. STORM WATER POLLUTION PREVENTION & MANAGEMENT PROGRAMS

The permittee is required to develop and implement a storm water pollution prevention and management program designed to reduce, to the maximum extent practicable the discharge of pollutants from the Municipal Separate Storm Sewer System. The permittee may implement Storm Water Management Program (SWMP) elements through participation with other public agencies or private entities in cooperative efforts satisfying the requirements of this permit in lieu of creating duplicate program elements. Either cumulatively, or separately, the permittee's storm water pollution prevention and management programs shall satisfy the requirements of Part I.B.1-7. below for all portions of the Municipal Separate Storm Sewer System (MS4) authorized to discharge under this permit and shall reduce the discharge of pollutants to the maximum extent practicable. The storm water pollution prevention and management program requirements of this Part shall be implemented through the SWMP submitted as part of the permit application and revised as necessary.

1. POLLUTION PREVENTION REQUIREMENTS The permittee shall develop and implement the following pollution prevention measures as they relate to discharges to the separate storm sewer:

a. Development The permittee shall assist and coordinate with the appropriate municipal agencies with jurisdiction over land use to ensure that municipal approval of all new development and significant redevelopment projects within the City of Boston which discharge to the MS4 is conditioned on due consideration of water quality impacts. The permittee shall cooperate with appropriate municipal agencies to ensure that development activities conform to applicable state and local regulations, guidance and policies relative to storm water discharges to separate storm sewers. Such requirements shall limit increases in the discharge of pollutants in storm water as a result of new development, and reduce the discharge of pollutants in storm water as a result of redevelopment.

b. Used Motor Vehicle Fluids The permittee shall coordinate with appropriate municipal agencies or private entities to assist in the implementation of a program to collect used motor vehicle fluids (including, at a minimum, oil and antifreeze) for recycle, reuse, or proper disposal. Such program shall be readily available to all residents of the City of Boston and publicized and promoted at least annually.

c. Household Hazardous Waste (HHW) The permittee shall coordinate with appropriate municipal agencies or private entities to assist in the implementation of a program to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal and promote proper handling and disposal. Such program shall be readily available to all private residents. This program shall be publicized and promoted at least annually.

2. STORM WATER MANAGEMENT PROGRAM REQUIREMENTS: The permittee shall continue to implement the Storm Water Management Program (SWMP) which it described in its May 17, 1993 storm water permit application and updated June 1995 and June 1998 in accordance with Section 402(p)(3)(B) of the Clean Water Act (CWA or "the Act"). This SWMP outlined in the permit application, including all updates, is approvable upon issuance of this permit.

In accordance with Part I.E. Annual Report, no later than **March 1, 2000** the permittee shall describe all the updates which it has conducted and all additional measures it will take to satisfy the requirements of this permit and the goals of the storm water management program. The Controls and activities identified in the SWMP shall clearly identify goals, a description of the controls or activities, and a description of the roles and responsibilities of other entities' areas of applicability on a system, jurisdiction, or specific area basis. The permittee will specifically address its roles and activities as they relate to portions of the SWMP which are not under its direct control (e.g. street sweeping, HHW collection, development, redevelopment). The permit may be modified to designate the agencies that administer these programs as co-permittees or require a separate permit. These entities would then be responsible for applicable permit conditions and requirements. The SWMP, and all approved updates, are hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:

a. Statutory Requirements: The SWMP shall include controls necessary to reduce the discharge of pollutants from the Municipal Separate Storm Sewer System to the Maximum Extent Practicable (MEP). Controls may consist of a combination of best management practices, control techniques, system design and engineering methods, and such other provisions as the permittee, Director or the State determines appropriate. The various components of the SWMP, taken as a whole (rather than individually), shall be sufficient to meet this standard. The SWMP shall be updated as necessary to ensure conformance with the requirements of CWA § 402(p)(3)(B). The permittee shall select measures or controls to satisfy the following water quality prohibitions:

No discharge of toxics in toxic amounts.

No discharge of pollutants in quantities that would cause a violation of State water quality standards.

No discharge of either a visible oil sheen, foam, or floating solids, in other than trace amounts.

b. Structural Controls: The permittee shall operate and maintain all storm water structural controls which it owns or operates in a manner so as to reduce the discharge of pollutants to the MEP.

c. Areas of New Development and Significant Redevelopment: The permittee shall continue to implement its site plan review process and ensure compliance with its existing regulations. The permittee shall also coordinate with appropriate municipal agencies to assist in the development, implementation, and enforcement of controls to minimize the discharge of pollutants to the separate storm sewer system from areas of new development and significant re-development during and after construction. The permittee shall assist appropriate municipal agencies to ensure that development activities conform to applicable state and local regulations, guidance and policies relative to storm water discharges to separate storm sewers.

d. Roadways: The permittee shall coordinate with appropriate agencies to assist in the implementation of measures to ensure that roadways and highways are operated and maintained in a manner so as to minimize the discharge of pollutants to the separate storm sewer system (including those related to deicing or sanding activities).

e. Flood Control Projects: The permittee shall ensure that any flood management projects within its direct control are completed after consideration of impacts on the water quality of receiving waters. The permittee shall also evaluate the feasibility of retro-fitting existing structural flood control devices it owns or operates to provide additional pollutant removal from storm water.

f. Pesticide, Herbicide, and Fertilizer Application: The permittee shall cooperate with appropriate municipal agencies to evaluate existing measures to reduce the discharge of pollutants related to the application of pesticides, herbicides, and fertilizers applied by municipal or public agency employees or contractors to public right of ways, parks, and other municipal facilities. The permittee shall evaluate the necessity to implement controls to reduce discharge of pollutants related to the application and distribution of pesticides, herbicides, and fertilizers by commercial and wholesale distributors and applicators. The permittee shall require controls, within its authority, as necessary.

g. Illicit Discharges and Improper Disposal: The permittee shall continue to implement its program to detect and remove illicit discharges (or require the discharger to the MS4 to remove or obtain a separate NPDES permit for the discharge) and improper disposal into the separate storm sewer.

1. The permittee shall effectively prohibit non-storm water discharges to the Municipal Separate Storm Sewer System, other than those authorized under this permit or a separate NPDES permit.

2. Unless identified by either the permittee, the Director, or the State as significant sources of pollutants to waters of the United States, the following non-storm water discharges are authorized to enter the MS4. As necessary, the permittee may incorporate appropriate control measures in the SWMP to ensure these discharges are not significant sources of pollutants to waters of the United States.

(a) water line flushing;
(b) landscape irrigation;
(c) diverted stream flows;
(d) rising ground waters;
(e) uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers;

(f) uncontaminated pumped ground water;
(g) discharges from potable water sources;
(h) foundation drains;
(i) uncontaminated air conditioning or compressor condensate;
(j) irrigation water;
(k) uncontaminated springs;
(l) water from crawl space pumps;
(m) footing drains;
(n) lawn watering;
(o) non-commercial car washing;
(p) flows from riparian habitats and wetlands;
(q) swimming pool discharges which have been dechlorinated;
(r) street wash waters;
(s) discharges or flows from emergency fire fighting activities;
(t) fire hydrant flushing; and
(u) building washdown water which does not contain detergents.

3. The permittee shall prevent unpermitted discharges of dry and wet weather overflows from sanitary sewers into the MS4. The permittee shall implement a program to identify and limit the infiltration of seepage from sanitary sewers into the MS4.

4. The permittee shall prohibit the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal wastes into separate storm sewers. The permittee must demonstrate that the prohibition is publicized at least annually, and that the information is available for non-English speaking residents of the City.

5. The permittee shall require the elimination of illicit connections as expeditiously as possible and the immediate cessation of improper disposal practices upon identification of responsible parties. The permittee shall describe its procedure for identification and elimination of illicit discharges. This information shall be included in the annual report required under Part I.E. below. Where elimination of an illicit connection within sixty (60) days is not possible, the permittee shall establish a schedule for the expeditious removal of the discharge. In the interim, the permittee shall take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.

h. Spill Prevention and Response: The permittee shall cooperate with appropriate federal, state, and municipal agencies in the development and implementation of a program to prevent, contain, and respond to spills that may discharge into or through the MS4. The spill response program may include a combination of spill response actions by the permittee (and/or other public or private entities), and requirements for private entities through the permittee's sewer use regulations. Except as explicitly authorized, materials from spills may not be discharged to Waters of the United States.

i. Industrial & High Risk Runoff: In cooperation with the DEP and EPA, the permittee shall implement a program to identify, monitor, and control pollutants in storm water discharges to the MS4 from municipal landfills; hazardous waste treatment, storage, disposal and recovery facilities and facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee determines is contributing a substantial pollutant loading to the MS4. The program shall include:

1. priorities and procedures for inspections and establishing and implementing control measures for such discharges;

2. a monitoring (or self-monitoring) program for facilities identified under this section, including the collection of quantitative data on the following constituents:

(a) any pollutants for which the discharger may monitor or which are limited in an existing NPDES permit for an identified facility;

(b) any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv);

(c) any pollutant the permittee has a reasonable expectation is discharged in substantial quantity from the facility to the separate storm sewer system.

Data collected by the industrial facility to satisfy the monitoring requirements of an NPDES or State discharge permit may be used to satisfy this requirement. The permittee may require the industrial facility to conduct self-monitoring to satisfy this requirement.

j. Construction Site Runoff: The permittee shall continue to implement its site plan review process and ensure compliance with its existing regulations. The permittee shall also cooperate with appropriate municipal agencies in the development and implementation of a program to reduce the discharge of pollutants from construction sites to the MS4, including:

1. requirements for the use and maintenance of appropriate structural and non-structural best management practices to reduce pollutants discharged to the MS4 during the time construction is underway;

2. procedures for site planning which incorporate considerations for potential short term and long term water quality impacts and measures to minimize these impacts;

3. prioritized inspection of construction sites and enforcement of control measures as required by the permittee;

4. providing assistance to appropriate municipal agencies in the development of education and training measures for construction site operators; and

5. providing assistance to appropriate municipal agencies in the development of a notification to appropriate building permit applicants of their potential responsibilities under the NPDES permitting program for construction site runoff.

k. Public Education: The permittee, in coordination with other appropriate municipal agencies, shall implement a public education program including, but not limited to:

1. A program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or improper disposal of materials (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4 (e.g. curb inlet stenciling, citizen "streamwatch" groups, "hotlines" for reporting dumping, outreach materials included in billings, advertising on public access/government cable channels, etc.);

2. a program to promote, publicize, and facilitate the proper management and disposal of used oil, vehicle fluids and lubricants, and household hazardous wastes;

3. a program to promote, publicize, and facilitate the proper use, application, and disposal of pesticides, herbicides, and fertilizers;

4. where applicable and feasible, the permittee should publicize those best management practices (including but not limited to the use of reformulated or redesigned products, substitution of less toxic materials, and improvements in housekeeping) developed by municipal agencies or environmental organizations that facilitate better use, application, and/or disposal of materials identified in k.1 - k.3 of this section.

3. DEADLINES FOR PROGRAM COMPLIANCE: Except as provided in PART II, and Part I.B.7. the permittee shall continue to implement its Storm Water Management Program.

4. ROLES AND RESPONSIBILITIES OF PERMITTEE: The Storm Water Management Program shall clearly identify the roles and responsibilities of the permittee and appropriate municipal agencies impacting its efforts to comply with this permit.

5. LEGAL AUTHORITY: The permittee has demonstrated and shall maintain legal authority to control discharges to and from those portions of the MS4 which it owns or operates. This legal authority may be a combination of statute, regulation, permit, contract, or an order to:

a. Control the contribution of pollutants to the MS4 by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity;

b. Prohibit illicit discharges to the MS4;

c. As necessary, control the discharge of spills and the dumping or disposal of materials other than storm water (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4;

d. Control through interagency or inter-jurisdictional agreements the contribution of pollutants from one portion of the MS4 to another;

e. Require compliance with conditions in regulations, permits, contracts or orders; and

f. Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance with permit conditions.

6. STORM WATER MANAGEMENT PROGRAM RESOURCES The permittee shall provide adequate finances, staff, equipment, and support capabilities to implement its SWMP.

7. STORM WATER MANAGEMENT PROGRAM REVIEW AND MODIFICATION

a. Demonstration Project: Within **180** days of the effective date of the permit, the permittee shall submit a plan to assess the effectiveness of existing non-structural BMPs. This plan shall identify a drainage area or sub-area which has undergone an investigation for illicit connections and is believed to be reasonably free of sanitary sewer influence. The plan shall clearly specify activities to be conducted, responsible parties and method of assessment. The project shall commence within one year of the effective date of the permit and continue for at least one year. Within **90** days of project completion the permittee shall submit a report which identifies measures undertaken and effectiveness of those measures.

b. Program Review: The permittee shall participate in an annual review of its current SWMP in conjunction with preparation of the annual report required under Part I.E. This annual review shall include:

1. A review of the status of program implementation and compliance with program elements and other permit conditions as necessary;

2. An assessment of the effectiveness of controls established by the SWMP;

3. A review of monitoring data and any trends in estimated cumulative annual pollutant loadings;

4. An assessment of any SWMP modifications needed to comply with the CWA §402(p)(3)(B)(iii) requirement to reduce the discharge of pollutants to the maximum extent practicable (MEP).

5. An assessment of staff and funding levels adequate to comply with the permit conditions.

c. Program Modification: The permittee may modify the SWMP in accordance with the following procedures:

1. The approved SWMP shall not be modified by the permittee(s) without the prior approval of the Director, unless in accordance with items c.2. or c.3. below.

2. Modifications adding (but not subtracting or replacing) components, controls, or requirements to the approved SWMP may be made by the permittee at any time upon written notification to the Director.

3. Modifications replacing or eliminating an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP may be requested at any time. Unless the Director comments on or denies the request within 60 days from submittal, the permittee shall implement the modification and proposed schedule. Such requests must include the following:

(a) an analysis of why the BMP is ineffective or infeasible (including cost considerations),

(b) expectations on the effectiveness of the replacement BMP and proposed schedule for implementation, and

(c) an analysis of why the replacement of the BMP is expected to achieve the goals of the BMP to be replaced,

(d) in the case of an elimination of the BMP, an analysis of why the elimination is not expected to cause or contribute to a water quality impact.

4. Modification requests and/or notifications must be made in writing and signed in accordance with Part II.D.2.

d. Modifications required by the Permitting Authority: The Director or the State may require the permittee to modify the SWMP as needed to:

1. Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;

2. Include more stringent requirements necessary to comply with new State or Federal statutory or regulatory requirements; or

3. Include such other conditions deemed necessary by the Director to comply with the goals and requirements of the Clean Water Act.

Modifications required by the Director shall be made in writing and set forth a time schedule for the permittee to develop the modification(s).

C. WET WEATHER MONITORING AND REPORTING REQUIREMENTS

1. Storm Event Discharges. The permittee shall implement a wet-weather monitoring program for the MS4 to provide data necessary to assess the effectiveness and adequacy of control measures implemented under the SWMP; estimate annual cumulative pollutant loadings from the MS4; estimate event mean concentrations and seasonal pollutants in discharges from all outfalls; identify and prioritize portions of the MS4 requiring additional controls, and identify water quality improvements or degradation. Improvement in the quality of discharges from the MS4 will be assessed based on the monitoring information required by this section, along with any additional pertinent information. There have been no numeric effluent limits established for this permit. Further monitoring or effluent limits may be established to ensure compliance with the goals of the Clean Water Act, appropriate Water Quality Standards, or applicable technology based requirements.

a. Representative Monitoring: Within **90** days after the effective date of this permit, the permittee shall submit a proposed sampling plan. The permittee shall monitor a minimum of five (5) representative drainage areas to characterize the quality of storm water discharges from the MS4. The proposed sampling plan shall consider monitoring each site three (3) times a year for a period of at least two years. All five sites shall be completed within the five year permit term and may be done partially or consecutively. The permittee shall choose locations representing the different land uses or is representative of drainage areas served by the MS4. The permittee may submit an alternative plan for sampling frequency only subject to the approval of EPA and DEP. At a minimum, the monitoring program shall analyze for the following parameters: pH, Temperature, Dissolved Oxygen, Total Suspended Solids, BOD5, COD, Fecal Coliform, Total Nitrogen, Nitrate/Nitrite, Ammonia (as N), Total Phosphorous, Ortho-Phosphate, Oil and Grease, Total Petroleum Hydrocarbons, Surfactants, Fluoride, Copper, and Zinc. Unless commented on or denied by the Director within **60** days after its submittal, the proposed sampling plan shall be deemed approved. This monitoring program shall commence no later than **180** days from the effective date of the permit unless otherwise specified by EPA and DEP. Subsequent monitoring locations and parameters for the remainder of the permit term shall be determined based upon the results of these sampling locations and other water quality information available to EPA, DEP and the permittee.

b. Receiving Water Quality Monitoring. The permittee shall monitor a minimum of four (4) receiving waters three (3) times a year throughout the permit term to characterize the water quality impacts of storm water discharges from the MS4. Sampling shall be conducted during a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (0.1 inch) storm event. Within **90** days after the effective date of this permit, the permittee shall submit its proposed sampling plan. At a minimum, the monitoring program shall analyze for the following parameters: pH, Temperature, Dissolved Oxygen, Total Suspended Solids, BOD5, COD, Fecal Coliform, Total Nitrogen, Nitrate/Nitrite, Ammonia (as N), Total Phosphorous, Ortho-Phosphate, Oil and Grease, Total Petroleum Hydrocarbons, Surfactants, Fluoride, Copper, and Zinc. Unless commented on or denied by the Director within **60** days after its submittal, the proposed sampling plan shall be deemed approved. This monitoring program shall commence no later than six months after the effective date of the permit.

c. Alternate Representative Monitoring: Monitoring locations may be substituted for just cause during the term of the permit. Requests for alternate monitoring locations by the permittee shall be made to the Director in writing and include the rationale for the requested monitoring station relocation. Unless commented on or denied by the Director, use of an alternate monitoring location may commence sixty (60) days from the date of the request.

2. Storm Event Data: For Part I.C.1.a Data shall be collected to estimate pollutant loadings and event mean concentrations for each parameter sampled. The permittee shall maintain records of the date and duration (hours) of the storm event sampled; rainfall measurements or estimates (inches) of the storm event which generated the sampled runoff; the duration (hours) between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and the total estimated volume (in gallons) of the discharge sampled. If manual sampling is employed, the permittee shall record physical observations of the discharge such as color and smell; and visible water quality impacts such as floatables, oil sheen, or evidence of sedimentation in the vicinity of the outfall (e.g. sandbars).

3. Sample Type, Collection, and Analysis: The following requirements apply to samples collected pursuant to Part I.C.1.a.

a. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one grab sample may be taken.

b. Grab samples shall be used for the analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil & grease, fecal coliform, and fecal streptococcus. For all other parameters, data shall be reported for flow weighted composite samples of the entire event or, at a minimum, the first three hours of discharge.

c. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Composite samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes.

d. Analysis and collection of samples shall be conducted in accordance with the methods specified at 40 CFR Part 136. Where an approved Part 136 method does not exist, any available method may be used.

4. Sampling Waiver. When the permittee is unable to collect samples required by Part I.C.1.a due to adverse climatic conditions, the discharger must submit, in lieu of sampling data, a description of why samples could not be collected, including available documentation of the event. Adverse climatic conditions which may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

5. Sampling Results. The permittee shall record the results of sampling and assessment of the data in a report and submit results with its Annual Report.

6. Wet Weather Screening: The permittee shall develop and implement a program to identify, investigate, and address areas within their jurisdiction that may be contributing excessive levels of pollutants to the MS4 as a result of rainfall or snow melt. Screening shall be conducted at anytime precipitation causes a flow from the storm sewer. At a minimum the wet weather screening program:

a. shall screen all major outfalls at least once during the permit term;

b. shall record the structural integrity of the outfall (if visible); physical observations of the discharge (if visible) such as color and smell; and visible water quality impacts such as floatables, oil sheen, or evidence of sedimentation in the vicinity of the outfall (e.g. sandbars).

c. shall summarize the results of the program in its Annual Report.

d. The permittee may submit an alternate wet weather screening pilot program on a watershed or sub-watershed basis. The pilot project concept must be submitted to EPA and DEP within 90 days of the effective date of the permit. The permittee shall identify reasons it believes that a system wide screening program would not be effective. The pilot project may be conducted in conjunction with Receiving Water Quality Monitoring (C.1.b.), but not Representative Monitoring(C.1.a.)

D. DRY WEATHER DISCHARGES

1. Dry Weather Screening Program: At least once during the permit term, the permittee shall inspect all major outfalls, or nearest upstream location not subject to tidal influence or backflow, during dry weather to identify those outfalls with dry weather flow. Dry weather screening shall be conducted when there has been no greater than 0.10 inches of precipitation in the 72 hours prior to screening. The permittee shall record the structural integrity of the outfall (if visible). If flow is observed, the permittee shall record physical observations such as color, visible sheen, turbidity, floatables, smell, and an estimate of flow. If sewage is suspected, the permittee shall develop a schedule for follow-up activities to eliminate the source as soon as is practicable. The permittee shall summarize the results in its Annual Report

2. Screening Procedures: Screening methodology need not conform to the protocol at 40 CFR §122.26(d)(1)(iv)(D) or sample and collection methods of 40 CFR §136.

3. Follow-up on Dry Weather Screening Results: Follow-up activities shall be prioritized on the basis of:

   a. magnitude and nature of the suspected discharge;

   b. sensitivity of the receiving water; and

   c. other factors the permittee deems appropriate.

4. The permittee shall summarize the results of dry weather screening and submit with its Annual Report.

E. ANNUAL REPORT:

The permittee shall prepare and submit an annual report to be submitted by no later than **March 1, 2000** and annually thereafter. The report shall include the following separate sections, with an overview for the entire MS4:

1. The status of implementing the storm water management program(s);

2. Proposed changes to the storm water management program(s);

3. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and (d)(2)(v);

4. A summary of the data, including monitoring or screening data, that is accumulated throughout the reporting year;

5. A revised list of all current separate storm sewer outfalls and their locations, reflecting changes of the previous year.

6. Annual expenditures for the reporting period, with a breakdown of the major elements of the storm water management program, and the budget for the year following each annual report as well as an assessment of adequacy of staffing and equipment;

7. A summary describing the number and nature of enforcement actions, inspections, and public education programs;

8. Identification of water quality improvements or degradation attributable to the permittee;

9. An analysis of the effectiveness and removal efficiencies of structural controls owned or operated by the permittee (such as the off-line particle separator in Fenwood Road); and,

10. An update on the illicit connection program to include the total number of identified connections with an estimate of flow for each, total number of connections found in the reporting period to include how they were found (i.e. citizen complaint, routine inspection), number of connections corrected in the reporting period to include total estimated flow, and the costs of such repairs to include how the repairs were financed (i.e. by the permittee, costs provided to the permittee by the responsible party, repairs effected and financed by the responsible party). As an attachment to the report, the permittee should submit any existing tracking system information.

F. CERTIFICATION AND SIGNATURE OF REPORTS

All reports required by the permit and other information requested by the Director shall be signed and certified in accordance with the General Conditions-Part II of this permit.

G. REPORT SUBMISSION

1. Original signed copies of all notifications and reports required herein, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
NPDES PROGRAMS (SPA)
P.O. Box 8127
Boston, MA 02114

2. Signed copies of all notifications and reports shall be submitted to the State at:

Massachusetts Department of Environmental Protection
1 Winter Street
Boston, MA 02108
Attn: Mr. Steve Lipman

and

Massachusetts Department of Environmental Protection
Metro Boston/Northeast Regional Office
205A Lowell Street
Wilmington, MA 01887
Attn: Mr. Sabin Lord

H. RETENTION OF RECORDS

The permittee shall retain all records of all monitoring information, copies of all reports required by this permit and records of all other data required by or used to demonstrate compliance with this permit, until at least three years after coverage under this permit terminates. This period may be modified by alternative provisions of this permit or extended by request of the Director at any time. The permittee shall retain the latest approved version of the SWMP developed in accordance with Part I of this permit until at least three years after coverage under this permit terminates.

I. STATE PERMIT CONDITIONS

1. This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts DEP pursuant to M.G.L. Chap. 21, §43.

2. Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of Federal law, this Permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

OUTFALL NUMBER	OUTFALL TYPE	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	TIDEGATES No. OF GATES / NUMBER	RECEIVING WATER
08B066	MAJOR	EASEMENT/VFW PARKWAY	WEST ROXBURY	18		CHARLES RIVER
08B122	MAJOR	EASEMENT/NORTH OF SPRING STREET	WEST ROXBURY	30		CHARLES RIVER
08B126	MINOR	SPRING STREET EXTENDED	WEST ROXBURY	24		CHARLES RIVER
09B049	MAJOR	EASEMENT/RIVERMOOR STREET	WEST ROXBURY	30		COW ISLAND POND/ CHARLES RIVER
10B015	MAJOR	EASEMENT/CHARLES PARK ROAD	WEST ROXBURY	21		COW ISLAND POND/ CHARLES RIVER
11B123	MAJOR	EASEMENT/EAST OF BAKER ST. EXT.	WEST ROXBURY	72		BROOK FARM BROOK
12B010	MINOR	BAKER STREET	WEST ROXBURY	15		BROOK FARM BROOK
12B014	MINOR	BAKER STREET	WEST ROXBURY	12		BROOK FARM BROOK
12B031	MINOR	EASEMENT/BAKER STREET	WEST ROXBURY	18		BROOK FARM BROOK
12B033	MINOR	EASEMENT/BAKER STREET	WEST ROXBURY	18		BROOK FARM BROOK
12B124	MAJOR	EASEMENT/LaGRANGE STREET	WEST ROXBURY	120x102		BROOK FARM BROOK
13B002	MINOR	LaGRANGE STREET	WEST ROXBURY	15		UNNAMED STREAM
13B011	MINOR	LaGRANGE STREET	WEST ROXBURY	12		UNNAMED STREAM
06C110	MAJOR	EASEMENT/PLEASANTDALE ST. EXT.	WEST ROXBURY	60		NONE SHOWN
07C006	MAJOR	EASEMENT/VFW PARKWAY/BELLE AVENUE	WEST ROXBURY	126x126		CHARLES RIVER
08C318	MAJOR	WEDGEMERE ROAD	WEST ROXBURY	24		NONE SHOWN
08C319	MINOR	WEDGEMERE ROAD	WEST ROXBURY	24		UNNAMED STREAM
14C009	MAJOR	EASEMENT/WESTGATE ROAD	WEST ROXBURY	36		UNNAMED WETLANDS
21C212	MINOR	EASEMENT/LAKE SHORE ROAD	ALLSTON/BRIGHTON	30		CHANDLERS POND
22C384	MAJOR	EASEMENT/LAKE SHORE ROAD	ALLSTON/BRIGHTON	36		CHANDLERS POND
24C174	MINOR	EASEMENT/NEWTON STREET	ALLSTON/BRIGHTON	9x20		CHARLES RIVER
24C031	MAJOR	PARSONS STREET	ALLSTON/BRIGHTON	60X60		CHARLES RIVER
06D057	MINOR	CEDAR CREST CIRCLE	WEST ROXBURY	21		NEPONSET RIVER
06D083	MINOR	MARGARETTA DRIVE	WEST ROXBURY	15		WETLANDS/CHARLES RIVER
06D084	MINOR	EASEMENT/MARGARETTA DRIVE	WEST ROXBURY	12		WETLANDS/CHARLES RIVER
06D085	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	12		WETLANDS/CHARLES RIVER
06D086	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	10		WETLANDS/CHARLES RIVER
06D091	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	10		WETLANDS/CHARLES RIVER
06D184	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	18		WETLANDS/CHARLES RIVER
06D187	MAJOR	EASEMENT/GROVE STREET	WEST ROXBURY	36		BROOK GROVE STREET CEMETERY
13D077/078	MAJOR	WEST ROXBURY PARKWAY/VFW PARKWAY	WEST ROXBURY	2-60		BUSSEY BROOK
24D032	MAJOR	NORTH BEACON STREET, ABOUT 800' EAST OF PARSONS STREET	ALLSTON/BRIGHTON	119X130	1 / 24D032-18	CHARLES RIVER
24D150	MAJOR	SOLDIERS FIELD PLACE	ALLSTON/BRIGHTON	36		CHARLES RIVER
25D033	MAJOR	ABOUT 390' NORTH OF INTERSECTION OF SOLDIERS FIELD ROAD & WESTERN AVENUE	ALLSTON/BRIGHTON	36		CHARLES RIVER
01E024	MAJOR	EASEMENT/LAKESIDE	HYDE PARK	15		SPRAGUE POND/NEPONSET RIVER
03E185	MAJOR	NORTON STREET	HYDE PARK	2-18		WETLANDS/NEPONSET RIVER
03E186	MINOR	RIVER STREET	HYDE PARK	24		MILL POND/MOTHER BROOK
03E207	MINOR	RIVER STREET	HYDE PARK			MILL POND/MOTHER BROOK

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STORMWATER OUTFALLS

04E064	MINOR	ALVARADO AVE./RIVER STREET BRIDGE	HYDE PARK	12		MILL POND/MOTHER BROOK
04E069	MAJOR	KNIGHT STREET DAM	HYDE PARK	36		MOTHER BROOK
05E180	MINOR	GEORGETOWN DRIVE	HYDE PARK	12		NONE SHOWN/CHARLES RIVER
05E181	MINOR	GEORGETOWN DRIVE	HYDE PARK	12		NONE SHOWN/CHARLES RIVER
05E182	MINOR	DEDHAM STREET	HYDE PARK	21		UNNAMED STREAM/CHARLES RIVER
05E183	MINOR	GEORGETOWN PLACE/DEDHAM PARKWAY	HYDE PARK	12		UNNAMED STREAM
08E031	MINOR	TURTLE POND PARKWAY	WEST ROXBURY	18		TURTLE POND
08E033	MINOR	TURTLE POND PARKWAY	WEST ROXBURY	UNKNOWN		TURTLE POND
08E035	MINOR	WASHINGTON STREET	WEST ROXBURY	15		TURTLE POND
09E229	MINOR	GRANDVIEW STREET	WEST ROXBURY	12		NONE SHOWN
09E243	MAJOR	BLUE LEDGE TR./EASEMENT	WEST ROXBURY	30		UNNAMED STREAM
13E174	MINOR	EASEMENT/VFW PARKWAY	ROSLINDALE	24		BUSSEY BROOK
13E175	MAJOR	EASEMENT/VFW PARKWAY	ROSLINDALE	108X86		BUSSEY BROOK
13E176	MAJOR	EASEMENT/WELD STREET	ROXBURY	15		NONE SHOWN
25E037	MAJOR	EASEMENT/TELFORD STREET EXTENDED	ALLSTON/BRIGHTON	66		CHARLES RIVER
01F031	MAJOR	EASEMENT/MILLSTONE ROAD	HYDE PARK	48x24		NEPONSET RIVER
02F085	MINOR	LAWTON STREET	HYDE PARK	12		NEPONSET RIVER RESERVATION
02F093	MAJOR	EASEMENT/SIERRA ROAD	HYDE PARK	15		NEPONSET RIVER
02F120	MAJOR	EASEMENT/WOLCOTT CT./HYDE PARK AVE. EXT.	HYDE PARK	54		NEPONSET RIVER
04F016	MAJOR	EASEMENT RIVER STREET	HYDE PARK	30		MOTHER BROOK/NEPONSET RIVER
04F118	MINOR	MASON STREET EXT.	HYDE PARK	18		NEPONSET RIVER
04F119	MAJOR	EASEMENT/HYDE PARK AVE./RESERVATION RD.	HYDE PARK	24		NEPONSET RIVER
04F189	MAJOR	RESERVATION ROAD	HYDE PARK	36		MOTHER BROOK/NEPONSET RIVER
04F191	MINOR	FARADAY STREET	HYDE PARK	24		NONE SHOWN/NEPONSET RIVER
04F203	MINOR	GLENWOOD AVE	HYDE PARK	28		NEPONSET RIVER
04F204	MAJOR	TRUMAN HWY./CHITTICK STREET	HYDE PARK	36		NEPONSET RIVER
05F117	MAJOR	EASEMENT/TRUMAN HWY./WILLIAMS AVE.	HYDE PARK	33		NEPONSET RIVER
05F244	MINOR	HYDE PARK AVENUE BRIDGE	HYDE PARK	20		MOTHER BROOK/NEPONSET RIVER
05F245	MINOR	HYDE PARK AVENUE	HYDE PARK	33		MOTHER BROOK/NEPONSET RIVER
05F253	MAJOR	EASEMENT/BUSINESS ST., NEAR BUSINESS TERRACE	HYDE PARK	48x24		MOTHER BROOK/NEPONSET RIVER
05F254	MINOR	DANA AVENUE	HYDE PARK	12		NEPONSET RIVER
05F265	MAJOR	BEHIND L.E. MASON CO.	HYDE PARK	15		MOTHER BROOK/NEPONSET RIVER
06F233	MINOR	MOUNT ASH ROAD	HYDE PARK	UNK		WETLAND - STONY BROOK RESERVATION
12F322	MINOR	EASEMENT/WALTER STREET	ROSLINDALE	18		NONE SHOWN
13F095	MINOR	EASEMENT/BUSSEY STREET	ROSLINDALE	12		BUSSEY BROOK
14F181	MAJOR	CENTER STREET EXTENSION	ROSLINDALE	38X86		GOLDSMITH BROOK
14F185	MINOR	ALLANDALE STREET	ROSLINDALE	12		BUSSEY BROOK
15F288	MAJOR	ARNOLD ARBORETUM/MURRAY CIRCLE	JAMAICA PLAIN	54		GOLDSMITH BROOK
15F307	MAJOR	ARNOLD ARBORETUM, 100' EAST OF ARBORWAY & SAINT JOSEPH STREET	JAMAICA PLAIN	36X36		GOLDSMITH BROOK
17F012	MINOR	FRANCIS PARKMAN DRIVE	JAMAICA PLAIN	15		JAMAICA POND

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26F038	MAJOR	HARVARD STREET EXT.	ALLSTON/BRIGHTON	36		CHARLES RIVER
05G112	MAJOR	EASEMENT/RR ROW/WATER ST. EXT.	HYDE PARK	30		NEPONSET RIVER
05G115	MINOR	FAIRMOUNT AVENUE BRIDGE (NORTH BANK)	HYDE PARK	24		NEPONSET RIVER
05G116	MINOR	FAIRMOUNT AVE, BRIDGE (SOUTH BANK)	HYDE PARK	24		NEPONSET RIVER
05G116A	MINOR	WARREN AVENUE	HYDE PARK	24		NEPONSET RIVER
06G108	MAJOR	EASEMENT/WEST OF WOOD AVE. EXT.	HYDE PARK	69		NEPONSET RIVER
06G109	MAJOR	RIVER TERRACE EXT. NEAR ROSA STREET	HYDE PARK	48		NEPONSET RIVER
06G110	MAJOR	EASEMENT/WEST STREET EXT.	HYDE PARK	30		NEPONSET RIVER
06G111	MINOR	EASEMENT/VOSE STREET EXT., TRUMAN HWY.	HYDE PARK	24		NEPONSET RIVER
06G165	MINOR	TRUMAN HIGHWAY/METROPOLITAN AVE	HYDE PARK	10		NEPONSET RIVER
06G166	MAJOR	ABOUT 30 FEET FROM GUARDRAIL NORTHERLY SIDE OF TRUMAN HIGHWAY NEAR MILTON LINE.	HYDE PARK	36x36		NEPONSET RIVER
11G318	MINOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	24		CANTERBURY BROOK
11G319	MINOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	18		CANTERBURY BROOK
11G344	MAJOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	162X78		CANTERBURY BROOK
18G233	MINOR	WILLOW POND ROAD	JAMAICA PLAIN	15		MUDDY RIVER
19G043	MAJOR	HUNTINGTON AVENUE	ROXBURY/MISSION HALL	45x45		MUDDY RIVER
19G194	MINOR	HUNTINGTON AVENUE	ROXBURY/MISSION HILL	24		MUDDY RIVER
19G199	MINOR	JAMAICA WAY	ROXBURY/MISSION HILL	10		MUDDY RIVER
20G161	MAJOR	EASEMENT/BROOKLINE AVENUE	ROXBURY/MISSION HILL	36		MUDDY RIVER
20G163	MINOR	EASEMENT/RIVERWAY	ROXBURY/MISSION HILL	20		MUDDY RIVER
23G132	MAJOR	EASEMENT/MASS TURNPIKE/WEST OF B.U. BRIDGE	ALLSTON/BRIGHTON	60		CHARLES RIVER
24G034	MAJOR	SOLDIER'S FIELD ROAD, SOUTH OF CAMBRIDGE STREET	ALLSTON/BRIGHTON	36	1 / 24G034-1	CHARLES RIVER
24G035	MAJOR	SOLDIERS FIELD ROAD/BABCOCK STREET	ALLSTON/BRIGHTON	90x84		CHARLES RIVER
25G005	MINOR	FROM WESTERN AVENUE BRIDGE	ALLSTON/BRIGHTON	12		CHARLES RIVER
25G041	MINOR	SOLDIERS FIELD ROAD/NORTH OF WESTERN AVENUE BRIDGE	ALLSTON/BRIGHTON	24		CHARLES RIVER
06H106	MINOR	OSCEOLA STREET	HYDE PARK	24		NEPONSET RIVER
06H107	MAJOR	EASEMENT/BELNEL ROAD	HYDE PARK	24		NEPONSET RIVER
07H105	MAJOR	EASEMENT/EDGEWATER/SOUTH RIVER STREET	NEPONSET/MATTAPAN	102x72		NEPONSET RIVER
07H285	MAJOR	BLUE HILL AVENUE	NEPONSET/MATTAPAN	106x63		NEPONSET RIVER
07H287	MINOR	RIVER STREET/EDGEWATER DRIVE	NEPONSET/MATTAPAN	12		NEPONSET RIVER
07H346	MINOR	EDGEWATER DRIVE/HOLMFIELD AVENUE	HYDE PARK	18		NEPONSET RIVER
07H347	MINOR	EDGEWATER DRIVE/BURMAH ROAD	NEPONSET/MATTAPAN	21		NEPONSET RIVER
07H348	MINOR	EDGEWATER DRIVE/TOPALIAN STREET	NEPONSET/MATTAPAN	24		NEPONSET RIVER
12H085	MINOR	MORTON STREET	ROSLINDALE	15		CANTERBURY BROOK
	MAJOR	AMERICAN LEGION HIGHWAY	WEST ROXBURY	24		CANTERBURY BROOK
21H047	MINOR	PALACE ROAD EXT.	BOSTON PROPER	24		MUDDY RIVER

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21H048	MINOR	EASEMENT/FENWAY/EVANS WAY	BOSTON PROPER	15		MUDDY RIVER
21H201	MINOR	PALACE ROAD EXT.	BOSTON PROPER	6		MUDDY RIVER
23H040	MINOR	RALEIGH STREET EXT.	BOSTON PROPER	24		CHARLES RIVER
23H042	MAJOR	DEERFIELD STREET	BOSTON PROPER	116x120		CHARLES RIVER
08I153	MINOR	DUXBURY ROAD	NEPONSET/MATTAPAN	15		NEPONSET RIVER
08I154	MINOR	EASEMENT/RIVER STREET/GLADSIDE AVE	NEPONSET/MATTAPAN	18		NEPONSET RIVER
08I155	MINOR	EASEMENT/RIVER STREET/MAMELON CIR	NEPONSET/MATTAPAN	24		NEPONSET RIVER
08I156	MINOR	EASEMENT/RIVER STREET/MAMELON CIR	NEPONSET/MATTAPAN	24		NEPONSET RIVER
08I158	MINOR	EASEMENT/RIVER STREET/FREMONT ST.	NEPONSET/MATTAPAN	18		NEPONSET RIVER
08I207	MINOR	MEADOWBANK AVENUE EXT.	NEPONSET/MATTAPAN	15		NEPONSET RIVER
08I209	MINOR	MEADOWBANK AVENUE EXT.	NEPONSET/MATTAPAN	12		NEPONSET RIVER
11I577	MAJOR	HARVARD STREET	NEPONSET/MATTAPAN	102x102		CANTERBURY BROOK
08J041	MINOR	RIVER STREET	DORCHESTER	18		NEPONSET RIVER
08J102	MINOR	ADAMS STREET	DORCHESTER	15x15		NEPONSET RIVER
08J103	MAJOR	EASEMENT/CENTRAL AVENUE BRIDGE	DORCHESTER	30		NEPONSET RIVER
08J49/50	MAJOR	DESMOND ROAD	DORCHESTER	2-18&24		NEPONSET RIVER
26J052	MINOR	MONSIGNOR O'BRIEN HIGHWAY	BOSTON PROPER	12		CHARLES RIVER
26J055	MINOR	LEVERETT CIRCLE	BOSTON PROPER	12	1 / NOT MAPPED	CHARLES RIVER
27J001	MAJOR	EASEMENT/INTERSTATE 93	CHARLESTOWN	72		MILLERS RIVER
27J044	MAJOR	PRISON POINT BRIDGE	CHARLESTOWN	15		MILLERS RIVER
27J096	MAJOR	EASEMENT/INTERSTATE 93	CHARLESTOWN	54		MILLERS RIVER
29J029	MINOR	ALFORD STREET/RYAN PLGD. EXT.	CHARLESTOWN	15		MYSTIC RIVER
29J129	MINOR	ALFORD STREET	CHARLESTOWN	15		MYSTIC RIVER
29J212	MAJOR	EASEMENT/MEDFORD STREET (ALSO OF017)	CHARLESTOWN	72		MYSTIC RIVER
30J006	MAJOR	EASEMENT/ALFORD STREET	CHARLESTOWN	18		MYSTIC RIVER
30J019	MAJOR	ALFORD STREET	CHARLESTOWN	15		MYSTIC RIVER
30J030	MAJOR	EASEMENT/ARLINGTON AVENUE	CHARLESTOWN	42	1 / NOT MAPPED	MYSTIC RIVER
08K049	MINOR	BEARSE AVENUE	DORCHESTER	12		NEPONSET RIVER
09K016	MINOR	EASEMENT/BEARSE AVENUE EXT.	DORCHESTER	15		NEPONSET RIVER
09K100	MAJOR	EASEMENT/MELLISH ROAD	DORCHESTER	34X24		NEPONSET RIVER
09K101	MINOR	EASEMENT/HUNTOON STREET EXT.	DORCHESTER	24		NEPONSET RIVER
21K069	MAJOR	EAST BERKELEY STREET	BOSTON PROPER	48	1 / 21K069-1	FORT POINT CHANNEL
26K099	MAJOR	CHELSEA STREET EXT.	CHARLESTOWN	84		CHARLES RIVER

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

26K245	MINOR	EASEMENT	CHARLESTOWN	15		CHARLES RIVER
28K018	MAJOR	OLD LANDING WAY EXT.	CHARLESTOWN	42	1 / 28K058	LITTLE MYSTIC CHANNEL
28K061	MAJOR	EASEMENT/MEDFORD STREET	CHARLESTOWN	42	1 / 28K062	LITTLE MYSTIC CHANNEL
28K386	MAJOR	EASEMENT/TERMINAL STREET	CHARLESTOWN	30	1 / 28K385	LITTLE MYSTIC CHANNEL
10L094	MAJOR	EASEMENT/GALLIVAN BOULEVARD	DORCHESTER	74x93		NEPONSET RIVER VIA DAVENPORT BROOK
10L096	MAJOR	HILLTOP AND LENOXDALE STREETS	DORCHESTER	36		NEPONSET RIVER
12L092	MAJOR	PINE NECK CREEK STORM DRAIN TENEAN STREET WEST OF LAWLEY	DORCHESTER	72	2 / 12L294	NEPONSET RIVER
16L097	MAJOR	EASEMENT/OFF SAVIN HILL AVENUE	DORCHESTER	24		PATTEN'S COVE
20L081	MINOR	EAST FIRST STREET	SOUTH BOSTON	20		RESERVED CHANNEL
20L083	MINOR	EAST FIRST STREET	SOUTH BOSTON	20		RESERVED CHANNEL
21L077	MAJOR	CLAFLIN STREET EXT./EAST STREET EXT.	SOUTH BOSTON	24	1 / NOT MAPPED	RESERVED CHANNEL
23L016	MINOR	NORTHERN AVENUE	SOUTH BOSTON	2-15&16		BOSTON INNER HARBOR
23L074	MINOR	SUMMER STREET BRIDGE	SOUTH BOSTON	15		FORT POINT CHANNEL
23L075	MAJOR	CONGRESS STREET BRIDGE	SOUTH BOSTON	54		FORT POINT CHANNEL
23L140	MINOR	NORTHERN AVENUE	SOUTH BOSTON	10		BOSTON INNER HARBOR
23L145	MINOR	NORTHERN AVENUE	SOUTH BOSTON	10		BOSTON INNER HARBOR
23L164	MAJOR	CONGRESS STREET BRIDGE	BOSTON PROPER	48	1 / 23L164 IN CHANNEL WALL	FORT POINT CHANNEL
23L195	MAJOR	NORTHERN AVENUE	SOUTH BOSTON	36		BOSTON INNER HARBOR
23L196	MAJOR	NEW NORTHERN AVENUE BRIDGE	SOUTH BOSTON	36		FORT POINT CHANNEL
23L202	MAJOR	NORTHERN AVENUE	SOUTH BOSTON	36		BOSTON INNER HARBOR
24L057	MINOR	STATE STREET EXT.	BOSTON PROPER	18x18		BOSTON INNER HARBOR
24L233	MAJOR	ROWE'S WHARF/ATLANTIC AVENUE	BOSTON PROPER	42		BOSTON HARBOR
25L058	MAJOR	CHRISTOPHER COLUMBUS PARK - WATERFRONT	BOSTON PROPER	84		BOSTON INNER HARBOR
25L144	MINOR	CLARK STREET	BOSTON PROPER	12		BOSTON INNER HARBOR
26L055	MAJOR	NEAR BATTERY WHARF	BOSTON PROPER	24X24		BOSTON INNER HARBOR
26L070	MAJOR	HANOVER STREET EXT.	BOSTON PROPER	36		BOSTON INNER HARBOR
26L84	MINOR	LEWIS STREET	EAST BOSTON	18		BOSTON INNER HARBOR
27L020	MAJOR	PIER NO. 4 EASEMENT - NAVY YARD	CHARLESTOWN	2-20&24	1 / 27K020-1	BOSTON INNER HARBOR
28L073	MINOR	EASEMENT/4TH STREET - NAVY YARD	CHARLESTOWN	6		LITTLE MYSTIC CHANNEL
28L074/075/076	MAJOR	16TH STREET/4TH AVENUE - NAVY YARD	CHARLESTOWN	3-30		LITTLE MYSTIC CHANNEL
28L077	MINOR	EASEMENT/4TH AVENUE - NAVY YARD	CHARLESTOWN	10		LITTLE MYSTIC CHANNEL
11M093	MAJOR	NEPONSET AVENUE AT NROTHWEST END OF NEPONSET AVENUE BRIDGE	DORCHESTER	48		NEPONSET RIVER
12M091	MAJOR	ERICSSON/WALNUT ST.	NEPONSET/MATTAPAN	36		NEPONSET RIVER
17M033	MAJOR	HARBOR POINT PARK (RELOCATED MT. VERNON ST. DRAIN)	DORCHESTER	72		DORCHESTER BAY
21M005	MAJOR	SUMMER STREET	SOUTH BOSTON	18		RESERVED CHANNEL

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

29M032	MINOR	CONDOR STREET	EAST BOSTON	30		CHELSEA RIVER
29M041	MAJOR	EASEMENT/CONDOR STREET	EAST BOSTON	36x30		CHELSEA RIVER
29M049	MINOR	CONDOR STREET	EAST BOSTON	24		CHELSEA RIVER
29N135	MAJOR	ADDISON STREET	EAST BOSTON	30x30		CHELSEA RIVER
28N156	MINOR	COLERIDGE STREET EXT.	EAST BOSTON	12		BOSTON HARBOR
29O001	MAJOR	BENNINGTON STREET	EAST BOSTON	66	1 / 290062	BOSTON HARBOR NEAR CONSTITUTION BEACH
31O004	MINOR	EASEMENT/WALDEMAR AVENUE	EAST BOSTON	15		CHELSEA RIVER
28P001	MINOR	EASEMENT	EAST BOSTON	12		BOSTON HARBOR NEAR CONSTITUTION BEACH
29P015	MINOR	EASEMENT/BARNES AVENUE	EAST BOSTON	12		BELLE ISLE INLET
29P044	MINOR	SHAWSHEEN STREET	EAST BOSTON	12		BOSTON HARBOR
30P062	MINOR	PALERMO AVENUE EXTENSION	EAST BOSTON	12		WETLANDS
31P084	MINOR	EASEMENT/BENNINGTON STREET	EAST BOSTON	30		BELLE ISLE INLET, REVERE

Major* : 93

Minor : 102

Total: 195

* Major outfall means : An outfall that discharges from a single pipe of 36" or larger in diameter or a non-circular pipe which is associated with drainage area of more than 50 acres; or an outfall that discharges from a single pipe of 12" or larger in diameter serving lands zoned for industrial activity or a non-circular pipe which is associated with drainage area of 2 acres or more.

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

OUTFALL NUMBER	OUTFALL TYPE	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	TIDEGATES No. OF GATES / NUMBER	RECEIVING WATER
08B066	MAJOR	EASEMENT/VFW PARKWAY	WEST ROXBURY	18		CHARLES RIVER
08B122	MAJOR	EASEMENT/NORTH OF SPRING STREET	WEST ROXBURY	30		CHARLES RIVER
08B126	MINOR	SPRING STREET EXTENDED	WEST ROXBURY	24		CHARLES RIVER
09B049	MAJOR	EASEMENT/RIVERMOOR STREET	WEST ROXBURY	30		COW ISLAND POND/ CHARLES RIVER
10B015	MAJOR	EASEMENT/CHARLES PARK ROAD	WEST ROXBURY	21		COW ISLAND POND/ CHARLES RIVER
11B123	MAJOR	EASEMENT/EAST OF BAKER ST. EXT.	WEST ROXBURY	72		BROOK FARM BROOK
12B010	MINOR	BAKER STREET	WEST ROXBURY	15		BROOK FARM BROOK
12B014	MINOR	BAKER STREET	WEST ROXBURY	12		BROOK FARM BROOK
12B031	MINOR	EASEMENT/BAKER STREET	WEST ROXBURY	18		BROOK FARM BROOK
12B033	MINOR	EASEMENT/BAKER STREET	WEST ROXBURY	18		BROOK FARM BROOK
12B124	MAJOR	EASEMENT/LaGRANGE STREET	WEST ROXBURY	120x102		BROOK FARM BROOK
13B002	MINOR	LaGRANGE STREET	WEST ROXBURY	15		UNNAMED STREAM
13B011	MINOR	LaGRANGE STREET	WEST ROXBURY	12		UNNAMED STREAM
06C110	MAJOR	EASEMENT/PLEASANTDALE ST. EXT.	WEST ROXBURY	60		NONE SHOWN
07C006	MAJOR	EASEMENT/VFW PARKWAY/BELLE AVENUE	WEST ROXBURY	126x126		CHARLES RIVER
08C318	MAJOR	WEDGEMERE ROAD	WEST ROXBURY	24		NONE SHOWN
08C319	MINOR	WEDGEMERE ROAD	WEST ROXBURY	24		UNNAMED STREAM
14C009	MAJOR	EASEMENT/WESTGATE ROAD	WEST ROXBURY	36		UNNAMED WETLANDS
21C212	MINOR	EASEMENT/LAKE SHORE ROAD	ALLSTON/BRIGHTON	30		CHANDLERS POND
22C384	MAJOR	EASEMENT/LAKE SHORE ROAD	ALLSTON/BRIGHTON	36		CHANDLERS POND
24C174	MINOR	EASEMENT/NEWTON STREET	ALLSTON/BRIGHTON	9x20		CHARLES RIVER
24C031	MAJOR	PARSONS STREET	ALLSTON/BRIGHTON	60X60		CHARLES RIVER
06D057	MINOR	CEDAR CREST CIRCLE	WEST ROXBURY	21		NEPONSET RIVER
06D083	MINOR	MARGARETTA DRIVE	WEST ROXBURY	15		WETLANDS/CHARLES RIVER
06D084	MINOR	EASEMENT/MARGARETTA DRIVE	WEST ROXBURY	12		WETLANDS/CHARLES RIVER
06D085	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	12		WETLANDS/CHARLES RIVER
06D086	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	10		WETLANDS/CHARLES RIVER
06D091	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	10		WETLANDS/CHARLES RIVER
06D184	MINOR	GEORGETOWN DRIVE	WEST ROXBURY	18		WETLANDS/CHARLES RIVER
06D187	MAJOR	EASEMENT/GROVE STREET	WEST ROXBURY	36		BROOK GROVE STREET CEMETERY
13D077/078	MAJOR	WEST ROXBURY PARKWAY/VFW PARKWAY	WEST ROXBURY	2-60		BUSSEY BROOK
24D032	MAJOR	NORTH BEACON STREET, ABOUT 800' EAST OF PARSONS STREET	ALLSTON/BRIGHTON	119X130	1 / 24D032-18	CHARLES RIVER
24D150	MAJOR	SOLDIERS FIELD PLACE	ALLSTON/BRIGHTON	36		CHARLES RIVER
25D033	MAJOR	ABOUT 390' NORTH OF INTERSECTION OF SOLDIERS FIELD ROAD & WESTERN AVENUE	ALLSTON/BRIGHTON	36		CHARLES RIVER
01E024	MAJOR	EASEMENT/LAKESIDE	HYDE PARK	15		SPRAGUE POND/NEPONSET RIVER
03E185	MAJOR	NORTON STREET	HYDE PARK	2-18		WETLANDS/NEPONSET RIVER
03E186	MINOR	RIVER STREET	HYDE PARK	24		MILL POND/MOTHER BROOK
03E207	MINOR	RIVER STREET	HYDE PARK			MILL POND/MOTHER BROOK

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

04E064	MINOR	ALVARADO AVE./RIVER STREET BRIDGE	HYDE PARK	12		MILL POND/MOTHER BROOK
04E069	MAJOR	KNIGHT STREET DAM	HYDE PARK	36		MOTHER BROOK
05E180	MINOR	GEORGETOWN DRIVE	HYDE PARK	12		NONE SHOWN/CHARLES RIVER
05E181	MINOR	GEORGETOWN DRIVE	HYDE PARK	12		NONE SHOWN/CHARLES RIVER
05E182	MINOR	DEDHAM STREET	HYDE PARK	21		UNNAMED STREAM/CHARLES RIVER
05E183	MINOR	GEORGETOWN PLACE/DEDHAM PARKWAY	HYDE PARK	12		UNNAMED STREAM
08E031	MINOR	TURTLE POND PARKWAY	WEST ROXBURY	18		TURTLE POND
08E033	MINOR	TURTLE POND PARKWAY	WEST ROXBURY	UNKNOWN		TURTLE POND
08E035	MINOR	WASHINGTON STREET	WEST ROXBURY	15		TURTLE POND
09E229	MINOR	GRANDVIEW STREET	WEST ROXBURY	12		NONE SHOWN
09E243	MAJOR	BLUE LEDGE TR./EASEMENT	WEST ROXBURY	30		UNNAMED STREAM
13E174	MINOR	EASEMENT/VFW PARKWAY	ROSLINDALE	24		BUSSEY BROOK
13E175	MAJOR	EASEMENT/VFW PARKWAY	ROSLINDALE	108X86		BUSSEY BROOK
13E176	MAJOR	EASEMENT/WELD STREET	ROXBURY	15		NONE SHOWN
2SE037	MAJOR	EASEMENT/TELFORD STREET EXTENDED	ALLSTON/BRIGHTON	66		CHARLES RIVER
01F031	MAJOR	EASEMENT/MILLSTONE ROAD	HYDE PARK	48x24		NEPONSET RIVER
02F085	MINOR	LAWTON STREET	HYDE PARK	12		NEPONSET RIVER RESERVATION
02F093	MAJOR	EASEMENT/SIERRA ROAD	HYDE PARK	15		NEPONSET RIVER
02F120	MAJOR	EASEMENT/WOLCOTT CT./HYDE PARK AVE. EXT.	HYDE PARK	54		NEPONSET RIVER
04F016	MAJOR	EASEMENT RIVER STREET	HYDE PARK	30		MOTHER BROOK/NEPONSET RIVER
04F118	MINOR	MASON STREET EXT.	HYDE PARK	18		NEPONSET RIVER
04F119	MAJOR	EASEMENT/HYDE PARK AVE./RESERVATION RD.	HYDE PARK	24		NEPONSET RIVER
04F189	MAJOR	RESERVATION ROAD	HYDE PARK	36		MOTHER BROOK/NEPONSET RIVER
04F191	MINOR	FARADAY STREET	HYDE PARK	24		NONE SHOWN/NEPONSET RIVER
04F203	MINOR	GLENWOOD AVE	HYDE PARK	28		NEPONSET RIVER
04F204	MAJOR	TRUMAN HWY./CHITTICK STREET	HYDE PARK	36		NEPONSET RIVER
05F117	MAJOR	EASEMENT/TRUMAN HWY./WILLIAMS AVE.	HYDE PARK	33		NEPONSET RIVER
05F244	MINOR	HYDE PARK AVENUE BRIDGE	HYDE PARK	20		MOTHER BROOK/NEPONSET RIVER
05F245	MINOR	HYDE PARK AVENUE	HYDE PARK	33		MOTHER BROOK/NEPONSET RIVER
05F253	MAJOR	EASEMENT/BUSINESS ST., NEAR BUSINESS TERRACE	HYDE PARK	48x24		MOTHER BROOK/NEPONSET RIVER
05F254	MINOR	DANA AVENUE	HYDE PARK	12		NEPONSET RIVER
05F265	MAJOR	BEHIND L.E. MASON CO.	HYDE PARK	15		MOTHER BROOK/NEPONSET RIVER
06F233	MINOR	MOUNT ASH ROAD	HYDE PARK	UNK		WETLAND - STONY BROOK RESERVATION
12F322	MINOR	EASEMENT/WALTER STREET	ROSLINDALE	18		NONE SHOWN
13F095	MINOR	EASEMENT/BUSSEY STREET	ROSLINDALE	12		BUSSEY BROOK
14F181	MAJOR	CENTER STREET EXTENSION	ROSLINDALE	38X86		GOLDSMITH BROOK
14F185	MINOR	ALLANDALE STREET	ROSLINDALE	12		BUSSEY BROOK
15F288	MAJOR	ARNOLD ARBORETUM/MURRAY CIRCLE	JAMAICA PLAIN	54		GOLDSMITH BROOK
15F307	MAJOR	ARNOLD ARBORETUM, 100' EAST OF ARBORWAY & SAINT JOSEPH STREET	JAMAICA PLAIN	36X36		GOLDSMITH BROOK
17F012	MINOR	FRANCIS PARKMAN DRIVE	JAMAICA PLAIN	15		JAMAICA POND

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

26F038	MAJOR	HARVARD STREET EXT.	ALLSTON/BRIGHTON	36		CHARLES RIVER
05G112	MAJOR	EASEMENT/RR ROW/WATER ST. EXT.	HYDE PARK	30		NEPONSET RIVER
05G115	MINOR	FAIRMOUNT AVENUE BRIDGE (NORTH BANK)	HYDE PARK	24		NEPONSET RIVER
05G116	MINOR	FAIRMOUNT AVE, BRIDGE (SOUTH BANK)	HYDE PARK	24		NEPONSET RIVER
05G116A	MINOR	WARREN AVENUE	HYDE PARK	24		NEPONSET RIVER
06G108	MAJOR	EASEMENT/WEST OF WOOD AVE. EXT.	HYDE PARK	69		NEPONSET RIVER
06G109	MAJOR	RIVER TERRACE EXT. NEAR ROSA STREET	HYDE PARK	48		NEPONSET RIVER
06G110	MAJOR	EASEMENT/WEST STREET EXT.	HYDE PARK	30		NEPONSET RIVER
06G111	MINOR	EASEMENT/VOSE STREET EXT., TRUMAN HWY.	HYDE PARK	24		NEPONSET RIVER
06G165	MINOR	TRUMAN HIGHWAY/METROPOLITAN AVE	HYDE PARK	10		NEPONSET RIVER
06G166	MAJOR	ABOUT 30 FEET FROM GUARDRAIL NORTHERLY SIDE OF TRUMAN HIGHWAY NEAR MILTON LINE.	HYDE PARK	36x36		NEPONSET RIVER
11G318	MINOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	24		CANTERBURY BROOK
11G319	MINOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	18		CANTERBURY BROOK
11G344	MAJOR	CULVERT UNDER WALK HILL STREET	ROSLINDALE	162X78		CANTERBURY BROOK
18G233	MINOR	WILLOW POND ROAD	JAMAICA PLAIN	15		MUDDY RIVER
19G043	MAJOR	HUNTINGTON AVENUE	ROXBURY/MISSION HALL	45x45		MUDDY RIVER
19G194	MINOR	HUNTINGTON AVENUE	ROXBURY/MISSION HILL	24		MUDDY RIVER
19G199	MINOR	JAMAICA WAY	ROXBURY/MISSION HILL	10		MUDDY RIVER
20G161	MAJOR	EASEMENT/BROOKLINE AVENUE	ROXBURY/MISSION HILL	36		MUDDY RIVER
20G163	MINOR	EASEMENT/RIVERWAY	ROXBURY/MISSION HILL	20		MUDDY RIVER
23G132	MAJOR	EASEMENT/MASS TURNPIKE/WEST OF B.U. BRIDGE	ALLSTON/BRIGHTON	60		CHARLES RIVER
24G034	MAJOR	SOLDIER'S FIELD ROAD, SOUTH OF CAMBRIDGE STREET	ALLSTON/BRIGHTON	36	1 / 24G034-1	CHARLES RIVER
24G035	MAJOR	SOLDIERS FIELD ROAD/BABCOCK STREET	ALLSTON/BRIGHTON	90x84		CHARLES RIVER
25G005	MINOR	FROM WESTERN AVENUE BRIDGE	ALLSTON/BRIGHTON	12		CHARLES RIVER
25G041	MINOR	SOLDIERS FIELD ROAD/NORTH OF WESTERN AVENUE BRIDGE	ALLSTON/BRIGHTON	24		CHARLES RIVER
06H106	MINOR	OSCEOLA STREET	HYDE PARK	24		NEPONSET RIVER
06H107	MAJOR	EASEMENT/BELNEL ROAD	HYDE PARK	24		NEPONSET RIVER
07H105	MAJOR	EASEMENT/EDGEWATER/SOUTH RIVER STREET	NEPONSET/MATTAPAN	102x72		NEPONSET RIVER
07H285	MAJOR	BLUE HILL AVENUE	NEPONSET/MATTAPAN	106x63		NEPONSET RIVER
07H287	MINOR	RIVER STREET/EDGEWATER DRIVE	NEPONSET/MATTAPAN	12		NEPONSET RIVER
07H346	MINOR	EDGEWATER DRIVE/HOLMFIELD AVENUE	HYDE PARK	18		NEPONSET RIVER
07H347	MINOR	EDGEWATER DRIVE/BURMAH ROAD	NEPONSET/MATTAPAN	21		NEPONSET RIVER
07H348	MINOR	EDGEWATER DRIVE/TOPALIAN STREET	NEPONSET/MATTAPAN	24		NEPONSET RIVER
12H085	MINOR	MORTON STREET	ROSLINDALE	15		CANTERBURY BROOK
	MAJOR	AMERICAN LEGION HIGHWAY	WEST ROXBURY	24		CANTERBURY BROOK
21H047	MINOR	PALACE ROAD EXT.	BOSTON PROPER	24		MUDDY RIVER

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

21H048	MINOR	EASEMENT/FENWAY/EVANS WAY	BOSTON PROPER	15		MUDDY RIVER
21H201	MINOR	PALACE ROAD EXT.	BOSTON PROPER	6		MUDDY RIVER
23H040	MINOR	RALEIGH STREET EXT.	BOSTON PROPER	24		CHARLES RIVER
23H042	MAJOR	DEERFIELD STREET	BOSTON PROPER	116x120		CHARLES RIVER
08I153	MINOR	DUXBURY ROAD	NEPONSET/MATTAPAN	15		NEPONSET RIVER
08I154	MINOR	EASEMENT/RIVER STREET/GLADSIDE AVE	NEPONSET/MATTAPAN	18		NEPONSET RIVER
08I155	MINOR	EASEMENT/RIVER STREET/MAMELON CIR	NEPONSET/MATTAPAN	24		NEPONSET RIVER
08I156	MINOR	EASEMENT/RIVER STREET/MAMELON CIR	NEPONSET/MATTAPAN	24		NEPONSET RIVER
08I158	MINOR	EASEMENT/RIVER STREET/FREMONT ST.	NEPONSET/MATTAPAN	18		NEPONSET RIVER
08I207	MINOR	MEADOWBANK AVENUE EXT.	NEPONSET/MATTAPAN	15		NEPONSET RIVER
08I209	MINOR	MEADOWBANK AVENUE EXT.	NEPONSET/MATTAPAN	12		NEPONSET RIVER
11I577	MAJOR	HARVARD STREET	NEPONSET/MATTAPAN	102x102		CANTERBURY BROOK
08J041	MINOR	RIVER STREET	DORCHESTER	18		NEPONSET RIVER
08J102	MINOR	ADAMS STREET	DORCHESTER	15x15		NEPONSET RIVER
08J103	MAJOR	EASEMENT/CENTRAL AVENUE BRIDGE	DORCHESTER	30		NEPONSET RIVER
08J49/50	MAJOR	DESMOND ROAD	DORCHESTER	2-18&24		NEPONSET RIVER
26J052	MINOR	MONSIGNOR O'BRIEN HIGHWAY	BOSTON PROPER	12		CHARLES RIVER
26J055	MINOR	LEVERETT CIRCLE	BOSTON PROPER	12	1 / NOT MAPPED	CHARLES RIVER
27J001	MAJOR	EASEMENT/INTERSTATE 93	CHARLESTOWN	72		MILLERS RIVER
27J044	MAJOR	PRISON POINT BRIDGE	CHARLESTOWN	15		MILLERS RIVER
27J096	MAJOR	EASEMENT/INTERSTATE 93	CHARLESTOWN	54		MILLERS RIVER
29J029	MINOR	ALFORD STREET/RYAN PLGD. EXT.	CHARLESTOWN	15		MYSTIC RIVER
29J129	MINOR	ALFORD STREET	CHARLESTOWN	15		MYSTIC RIVER
29J212	MAJOR	EASEMENT/MEDFORD STREET (ALSO OF017)	CHARLESTOWN	72		MYSTIC RIVER
30J006	MAJOR	EASEMENT/ALFORD STREET	CHARLESTOWN	18		MYSTIC RIVER
30J019	MAJOR	ALFORD STREET	CHARLESTOWN	15		MYSTIC RIVER
30J030	MAJOR	EASEMENT/ARLINGTON AVENUE	CHARLESTOWN	42	1 / NOT MAPPED	MYSTIC RIVER
08K049	MINOR	BEARSE AVENUE	DORCHESTER	12		NEPONSET RIVER
09K016	MINOR	EASEMENT/BEARSE AVENUE EXT.	DORCHESTER	15		NEPONSET RIVER
09K100	MAJOR	EASEMENT/MELLISH ROAD	DORCHESTER	34X24		NEPONSET RIVER
09K101	MINOR	EASEMENT/HUNTOON STREET EXT.	DORCHESTER	24		NEPONSET RIVER
21K069	MAJOR	EAST BERKELEY STREET	BOSTON PROPER	48	1 / 21K069-1	FORT POINT CHANNEL
26K099	MAJOR	CHELSEA STREET EXT.	CHARLESTOWN	84		CHARLES RIVER

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

26K245	MINOR	EASEMENT	CHARLESTOWN	15		CHARLES RIVER
28K018	MAJOR	OLD LANDING WAY EXT.	CHARLESTOWN	42	1 / 28K058	LITTLE MYSTIC CHANNEL
28K061	MAJOR	EASEMENT/MEDFORD STREET	CHARLESTOWN	42	1 / 28K062	LITTLE MYSTIC CHANNEL
28K386	MAJOR	EASEMENT/TERMINAL STREET	CHARLESTOWN	30	1 / 28K385	LITTLE MYSTIC CHANNEL
10L094	MAJOR	EASEMENT/GALLIVAN BOULEVARD	DORCHESTER	74x93		NEPONSET RIVER VIA DAVENPORT BROOK
10L096	MAJOR	HILLTOP AND LENOXDALE STREETS	DORCHESTER	36		NEPONSET RIVER
12L092	MAJOR	PINE NECK CREEK STORM DRAIN TENEAN STREET WEST OF LAWLEY	DORCHESTER	72	2 / 12L294	NEPONSET RIVER
16L097	MAJOR	EASEMENT/OFF SAVIN HILL AVENUE	DORCHESTER	24		PATTEN'S COVE
20L081	MINOR	EAST FIRST STREET	SOUTH BOSTON	20		RESERVED CHANNEL
20L083	MINOR	EAST FIRST STREET	SOUTH BOSTON	20		RESERVED CHANNEL
21L077	MAJOR	CLAFLIN STREET EXT./EAST STREET EXT.	SOUTH BOSTON	24	1 / NOT MAPPED	RESERVED CHANNEL
23L016	MINOR	NORTHERN AVENUE	SOUTH BOSTON	2-15&16		BOSTON INNER HARBOR
23L074	MINOR	SUMMER STREET BRIDGE	SOUTH BOSTON	15		FORT POINT CHANNEL
23L075	MAJOR	CONGRESS STREET BRIDGE	SOUTH BOSTON	54		FORT POINT CHANNEL
23L140	MINOR	NORTHERN AVENUE	SOUTH BOSTON	10		BOSTON INNER HARBOR
23L145	MINOR	NORTHERN AVENUE	SOUTH BOSTON	10		BOSTON INNER HARBOR
23L164	MAJOR	CONGRESS STREET BRIDGE	BOSTON PROPER	48	1 / 23L164 IN CHANNEL WALL	FORT POINT CHANNEL
23L195	MAJOR	NORTHERN AVENUE	SOUTH BOSTON	36		BOSTON INNER HARBOR
23L196	MAJOR	NEW NORTHERN AVENUE BRIDGE	SOUTH BOSTON	36		FORT POINT CHANNEL
23L202	MAJOR	NORTHERN AVENUE	SOUTH BOSTON	36		BOSTON INNER HARBOR
24L057	MINOR	STATE STREET EXT.	BOSTON PROPER	18x18		BOSTON INNER HARBOR
24L233	MAJOR	ROWE'S WHARF/ATLANTIC AVENUE	BOSTON PROPER	42		BOSTON HARBOR
25L058	MAJOR	CHRISTOPHER COLUMBUS PARK - WATERFRONT	BOSTON PROPER	84		BOSTON INNER HARBOR
25L144	MINOR	CLARK STREET	BOSTON PROPER	12		BOSTON INNER HARBOR
26L055	MAJOR	NEAR BATTERY WHARF	BOSTON PROPER	24X24		BOSTON INNER HARBOR
26L070	MAJOR	HANOVER STREET EXT.	BOSTON PROPER	36		BOSTON INNER HARBOR
26L84	MINOR	LEWIS STREET	EAST BOSTON	18		BOSTON INNER HARBOR
27L020	MAJOR	PIER NO. 4 EASEMENT - NAVY YARD	CHARLESTOWN	2-20&24	1 / 27K020-1	BOSTON INNER HARBOR
28L073	MINOR	EASEMENT/4TH STREET - NAVY YARD	CHARLESTOWN	6		LITTLE MYSTIC CHANNEL
28L074/075/076	MAJOR	16TH STREET/4TH AVENUE - NAVY YARD	CHARLESTOWN	3-30		LITTLE MYSTIC CHANNEL
28L077	MINOR	EASEMENT/4TH AVENUE - NAVY YARD	CHARLESTOWN	10		LITTLE MYSTIC CHANNEL
11M093	MAJOR	NEPONSET AVENUE AT NROTHWEST END OF NEPONSET AVENUE BRIDGE	DORCHESTER	48		NEPONSET RIVER
12M091	MAJOR	ERICSSON/WALNUT ST.	NEPONSET/MATTAPAN	36		NEPONSET RIVER
17M033	MAJOR	HARBOR POINT PARK (RELOCATED MT. VERNON ST. DRAIN)	DORCHESTER	72		DORCHESTER BAY
21M005	MAJOR	SUMMER STREET	SOUTH BOSTON	18		RESERVED CHANNEL

ATTACHMENT A
BOSTON WATER AND SEWER COMMISSION
STORMWATER OUTFALLS

29M032	MINOR	CONDOR STREET	EAST BOSTON	30		CHELSEA RIVER
29M041	MAJOR	EASEMENT/CONDOR STREET	EAST BOSTON	36x30		CHELSEA RIVER
29M049	MINOR	CONDOR STREET	EAST BOSTON	24		CHELSEA RIVER
29N135	MAJOR	ADDISON STREET	EAST BOSTON	30x30		CHELSEA RIVER
28N156	MINOR	COLERIDGE STREET EXT.	EAST BOSTON	12		BOSTON HARBOR
29O001	MAJOR	BENNINGTON STREET	EAST BOSTON	66	1 / 29O062	BOSTON HARBOR NEAR CONSTITUTION BEACH
31O004	MINOR	EASEMENT/WALDEMAR AVENUE	EAST BOSTON	15		CHELSEA RIVER
28P001	MINOR	EASEMENT	EAST BOSTON	12		BOSTON HARBOR NEAR CONSTITUTION BEACH
29P015	MINOR	EASEMENT/BARNES AVENUE	EAST BOSTON	12		BELLE ISLE INLET
29P044	MINOR	SHAWSHEEN STREET	EAST BOSTON	12		BOSTON HARBOR
30P062	MINOR	PALERMO AVENUE EXTENSION	EAST BOSTON	12		WETLANDS
31P084	MINOR	EASEMENT/BENNINGTON STREET	EAST BOSTON	30		BELLE ISLE INLET, REVERE

Major* : 93

Minor : 102

Total: 195

* Major outfall means : An outfall that discharges from a single pipe of 36" or larger in diameter or a non-circular pipe which is associated with drainage area of more than 50 acres; or an outfall that discharges from a single pipe of 12" or larger in diameter serving lands zoned for industrial activity or a non-circular pipe which is associated with drainage area of 2 acres or more.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: MAS010001

NAME AND ADDRESS OF APPLICANT:

Boston Water and Sewer Commission
425 Summer Street
Boston, Massachusetts 02210

NAME AND ADDRESS OF FACILITIES WHERE DISCHARGES OCCUR:

195 Storm water Outfalls listed in Permit Attachment A

RECEIVING WATERS:

Belle Isle Inlet, Boston Harbor, Boston Inner Harbor, Brook Farm Brook, Bussey Brook, Canterbury Brook, Chandler Pond, Charles River, Chelsea River, Dorchester Bay, Fort Point Channel, Goldsmith Brook, Jamaica Pond, Little Mystic Channel, Mill Pond, Millers River, Mother Brook, Muddy River, Mystic River, Neponset River, Old Harbor, Patten's Cove, Reserved Channel, Sprague Pond, Stony Brook, Turtle Pond, and unnamed wetlands, brooks and streams .

CLASSIFICATION: **Class SB and B**

I. Proposed Action, Type of Facility and Discharge Location.

The Boston Water and Sewer Commission(BWSC), the permittee, is empowered to promulgate rules and regulations regarding the use of its common sewers, including its sanitary sewers, combined sewers and storm drains. BWSC applied for its Municipal Separate Storm Sewer System(MS4) permit, which will discharge storm water from 195 identified separate storm sewer outfalls to receiving waters listed in Attachment A.

1. Discharge Characteristics

At the time of this draft, BWSC operates 195 identified separate storm sewer outfalls. Locations, size, and receiving waters for these outfalls are identified in Attachment A. Storm water discharge sampling results from five representative outfalls are shown on Table 3-21 of the permit application (Part II) dated May 17, 1993 and are included as Attachment B. A discussion of the results of sampling can be found in Part II Chapter 3 of the application.

2. Limitations and Conditions.

Permit conditions and all other requirements described herein may be found in Part I of the draft permit. No numeric effluent limitations have been established for this draft permit.

3. Permit Basis and Explanation of Permit Conditions.

As authorized by Section 402(p) of the Act, this permit is being proposed on a system-wide basis. This permit covers all areas under the jurisdiction of BWSC or otherwise contributing to discharges from municipal separate storm sewers owned or operated by the permittee.

a. Statutory basis for permit conditions. The conditions established by this permit are based on Section §402(p)(3)(B) of the Act which mandates that a permit for discharges from MS4s must: effectively prohibit the discharge of non-storm water to the MS4 and require controls to reduce pollutants in discharges from the MS4 to the maximum extent practicable including best management practices, control techniques, and system design and engineering methods, and such other provisions determined to be appropriate. MS4s are required to achieve compliance with Water Quality Standards. Section 301(b)(1)(C) of the Act, requires that NPDES permits include limitations, including those necessary to meet water quality standards. The intent of the permit conditions is to meet the statutory mandate of the Act.

EPA has determined that under the provisions of 40 CFR 122.44(k) the permit will include Best Management Practices (BMPs). A comprehensive Storm Water Management Program (SWMP) includes BMPs to demonstrate compliance with the maximum extent practicable standard. Section 402(p)(3)(B)(iii) of the Act clearly includes structural controls as a component of the maximum extent practicable requirement as necessary to achieve compliance with Water Quality Standards.

EPA encourages the permittee to explore opportunities for pollution prevention measures, while reserving the more costly structural controls for higher priority watersheds, or where pollution prevention measures prove unfeasible or ineffective in achieving water quality goals and standards.

b. Regulatory basis for permit conditions. As a result of the statutory requirements of the Act the EPA promulgated the MS4 Permit application regulations, 40 CFR 122.26(d). These regulations describe in detail the permit application requirements for operators of MS4s. The information in the application (Parts 1 and 2) and supplemental information provided in June 1995 and June 1998 was used to develop the draft permit conditions.

4. Discharges Authorized By This Permit.

a. Storm water. This permit authorizes all existing or new storm water point source discharges to waters of the United States from the MS4.

b. Non-storm water. This permit authorizes the discharge of storm water commingled with flows contributed by wastewater, or Storm Water Associated with Industrial Activity, provided such discharges are authorized by separate NPDES permits and in compliance with the permittee's regulations regarding the use of storm drains. Nothing in this draft permit conveys a right to discharge to the permittee's system without the permittee's authorization. In addition, certain types of non-storm waters identified in the draft permit at Part I.B.2.g. are authorized if appropriately addressed in the permittee's Storm Water Management Program.

The following demonstrates the difference between the Act's statutory requirements for discharges from municipal storm sewers and industrial sites:

i. Section 402(p)(3)(B) of the Act requires an effective prohibition on non-storm water discharges to a MS4 and controls to reduce the discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP).

ii. Section 402(p)(3)(A) of the Act requires compliance with treatment technology (BAT/BCT) and Section 301 water quality requirements on discharges of Storm Water Associated with Industrial Activity.

The Act requires Storm Water Associated with Industrial Activity discharging to the MS4 to be covered by a separate NPDES permit. However, the permittee is responsible for the quality of the ultimate discharge, and has a vested interest in locating uncontrolled and unpermitted discharges to the system.

c. Spills. This permit does not authorize discharges of material resulting from a spill. If discharges from a spill are unavoidable to prevent imminent threat to human life, personal injury, or severe property damage, the permittee has the responsibility to take (or insure the party responsible for the spill takes) reasonable and prudent measures to minimize the impact of discharges on human health and the environment.

5. Receiving Stream Segments and Discharge Locations.

The permittee discharges to the receiving waters listed in Attachment A, which are classified according to the Massachusetts Surface Water Quality Standards as Class B, B_{CSO}, SB, and SB_{CSO} water bodies. Despite variance conditions and CSO designation, storm water discharges shall achieve compliance with Class B and SB standards. Class B and SB waters shall be of such quality that they are suitable for the designated uses of protection and propagation of fish, other aquatic life and wildlife; and for primary and secondary contact recreation. Notwithstanding specific conditions of this permit, the discharges must not lower the quality of any classified water body below such classification, or lower the existing quality of any water body if the existing quality is higher than the classification, except in accordance with Massachusetts' Antidegradation Statutes and Regulations.

6. SWMP.

The following prohibitions apply to discharges from MS4s and were considered in review of the current management programs which the permittee is operating. In implementing the SWMP, the permittee is required to select measures or activities intended to achieve the following prohibitions.

No discharge of toxics in toxic amounts. The discharge of toxics in toxic amounts is prohibited (Section 101(a)(3) of the Act).

No discharge of pollutants in quantities that would cause a violation of State water quality standards. Section 301(b)(1)(C) of the Act and 40 CFR 122.44(d) require that NPDES permits include "...any more stringent limitations, including those necessary to meet water quality standards, treatment standards, or schedule of compliance, established pursuant to State law or regulations..." Implementation of the SWMP is reasonably expected to provide for protection of State water quality standards.

No discharge of non-storm water from the municipal separate storm sewer system, except in accordance with Part II.B.2. Permits issued to MS4s are specifically required by Section 402(p)(3)(B) of the Act to "...include a requirement to effectively prohibit non-storm water discharges into the storm sewers..." The regulations (40 CFR 122.26(d)(2)(iv)(B)(1)) allow the permittee to accept certain non-storm water discharges where they have not been identified as significant sources of pollutants. Any discharge allowed by the permittee and authorized by a separate NPDES permit is not subject to the prohibition on non-storm water discharges.

No numeric effluent limitations are proposed in the draft permit. In accordance with 40 CFR §122.44(k), the EPA has required a series of Best Management Practices, in the form of a comprehensive SWMP, in lieu of numeric limitations.

7. Storm Water Management Program.

BWSC provided updates to its SWMP in June 1995 and June 1998. The current SWMP addresses all required elements. Some of the elements of the SWMP are wholly or in part the responsibility of the City of Boston rather than BWSC. The permit requires the permittee to cooperate with appropriate municipal agencies to assure that the goals of the SWMP are achieved by building upon existing programs and procedures which address activities impacting storm water discharges to the MS4.

EPA has requested permit application information from the City of Boston. This information will be used to develop permit conditions for the City to implement the SWMP measures which are under its control. This will be effected through a permit modification identifying the City as a co-permittee and specifying its responsibilities or through the issuance of a separate permit to the City.

Table A identifies the required elements of the SWMP, the regulatory cite, and the relevant draft permit condition.

Table A - Storm Water Management Program Elements

Required Program Element	Permit Parts	Regulatory References (40 CFR 122.26...)
Structural Controls	I.B.2.b	(d)(2)(iv)(A)(1)
Areas of new development & significant redevelopment	I.B.2.c	(d)(2)(iv)(A)(2)
Roadways	I.B.2.d	(d)(2)(iv)(A)(3)
Flood Control Projects	I.B.2.e	(d)(2)(iv)(A)(4)
Pesticides, Herbicides, & Fertilizers Application	I.B.2.f	(d)(2)(iv)(A)(6)
Illicit Discharges and Improper Disposal	I.B.2.g	(d)(2)(iv)(B)(1)-(3), (iv)(B)(7)
Spill Prevention and Response	I.B.2.h	(d)(2)(iv)(B)(4)
Industrial and High Risk Runoff	I.B.2.i	(d)(2)(iv)(C), (iv)(A)(5)
Construction Site Runoff	I.B.2.j	(d)(2)(iv)(D)
Public Education	I.B.2.k	(d)(2)(iv)(A)(6), (iv)(B)(5), (iv)(B)(6)
Monitoring Program	I.C	(d)(2)(iv)(B)(2), (iii), (iv)(A), (iv)(C)(2)

Attachment C provides a discussion of the permit condition and the permittee's existing SWMP.

8. Legal Authority. BWSC has demonstrated its authority to promulgate regulations regarding the use of its common sewers, including its sanitary sewers, combined sewers and storm drains. Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains of the Boston Water and Sewer Commission were adopted January 15, 1998 and effective February 27, 1998.

9. Resources. Part I.B.6 of the permit requires the permittee to provide adequate support capabilities to implement its activities under the SWMP. Compliance with this requirement will be demonstrated by the permittee's ability to fully implement the SWMP, monitoring programs, and other permit requirements. The permit does not require specific funding or staffing levels, thus providing the permittee with the ability, and incentive, to adopt the most efficient and cost effective methods to comply with the permit requirements. The draft permit also requires an Annual Report (Part I.E.) which includes an evaluation of resources to implement the plan.

10. Monitoring and Reporting.

a. Monitoring. The BWSC sampled five locations which were selected to provide representative data on the quality and quantity of discharges from the MS4 as a whole. Parameters sampled included conventional, non-conventional, organic toxics, and other toxic pollutants. The EPA reviewed this information during the permitting process. Monitoring data is intended to be used by the BWSC to assist in its determination of appropriate storm water management practices. EPA used the data to identify the minimum parameters for sampling under Part I.C of the permit.

The BWSC is required (40 CFR §122.26(d)((2)(iii)(C) and (D)) to monitor the MS4 to provide data necessary to assess the effectiveness and adequacy of SWMP control measures; estimate annual cumulative pollutant loadings from the MS4; estimate event mean concentrations and seasonal pollutants in discharges from major outfalls; identify and prioritize portions of the MS4 requiring additional controls, and identify water quality improvements or degradation. The BWSC is responsible for conducting any additional monitoring necessary to accurately characterize the quality and quantity of pollutants discharged from the MS4.

EPA will make future permitting decisions based on the monitoring data collected during the permit term and available water quality information. Where the required permit term monitoring proves insufficient to show pollutant reductions, the EPA may require more stringent Best Management Practices, or where necessary to protect water quality, establish numeric effluent limitations.

1. Representative monitoring: The monitoring of the discharge of representative outfalls during actual storm events will provide information on the quality of runoff from the MS4, a basis for estimating annual pollutant loadings, and a mechanism to evaluate reductions in pollutants discharged from the MS4. Results from the monitoring program will be submitted annually with the annual report.

2. Requirements: The BWSC shall monitor representative discharges to characterize the quality of storm water discharges from the MS4. Within **90** days after the effective date of this permit, the BWSC will submit its proposed sampling plan. The BWSC shall choose five locations representing the different land uses or drainage areas representative of the system, with a focus on what it considers priority areas, such as an outfall in the vicinity of a public beach or a shellfish bed. This submittal shall also include any related monitoring which the BWSC has done since its MS4 permit application was submitted. Unless commented on or denied by the Director within **60** days after its submittal, the proposed sampling plan shall be deemed approved.

3. Parameters: The EPA established minimum permit parameter monitoring requirements based on the information available regarding storm water discharges and potential impacts of these discharges. The basic parameter list allows satisfaction of the regulatory requirement [40 CFR §122.26(d)(2)(iii)] to provide estimates of pollutant loadings for each major outfall.

4. Frequency: The frequency of annual monitoring is based on monitoring at least one representative storm event three times a year. The plan should consider sampling events in the spring, summer, and fall (excluding January to March). Monitoring frequency is based on permit year, not a calendar year. The first complete calendar year monitoring could be less than the stated frequency.

5. Receiving Water Quality Monitoring: The draft permit is conditioned to include four sampling stations to assess the impact of storm water discharges from the MS4 to receiving waters. The permittee shall submit a plan to sample four locations three times a year for the permit term within 90 days of the effective date of the permit. The minimum parameters for analysis are consistent with the representative monitoring requirements.

b. Screening. The draft permit requires two screening programs. Part I.C.6 requires the permittee to develop a Wet Weather Screening Program. This screening shall record physical observations of wet weather flows from all major outfalls at least once during the permit term. The program will identify discharges which may be contributing to water quality impairments short of analytical monitoring. Part I.D. requires a dry weather screening program.

c. Reporting. The permittee is required (40 CFR §122.42(c)(1)) to contribute to the preparation of an annual system-wide report including the status of implementing the SWMP; proposed changes to the SWMP; revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application; a summary of the data, including monitoring data, that is accumulated throughout the reporting year; annual expenditures and the budget for the year following each annual report; a summary describing the number and nature of enforcement actions, inspections, and public education programs; and identification of water quality improvements or degradation. Part I.E. of the draft permit requires the permittee to do annual evaluations on the effectiveness of the SWMP, and institute or propose modifications necessary to meet the overall permit standard of reducing the discharge of pollutants to the maximum extent practicable. In order to allow the orderly collection of budgetary and monitoring data it was determined to establish the annual report due date relative to the permittee's annual fiscal year. BWSC's fiscal year ends on **December 31** and the annual report is due on **March 1** each year commencing March 1, 1999.

11. Permit Modifications.

a. Reopener Clause. The EPA may reopen and require modifications to the permit (including the SWMP) based on the following factors: changes in the State's Water Quality Management Plan and State or Federal requirements; adding co-permittee(s); SWMP changes impacting compliance with permit requirements; other modifications deemed necessary by the EPA to adhere to the requirements of the Clean Water Act. Co-permittees may be incorporated into this permit or separate permits may be required as necessary to achieve the goals of the SWMP. Implementation of the SWMP is expected to result in the protection of water quality. The draft permit contains a reopener clause should new information indicate that the discharges from the MS4 are causing, or are significantly contributing to, a violation of the State's water quality standards.

b. SWMP Changes. The SWMP is intended to be a tool to achieve the maximum extent practicable and water quality standards. Therefore, minor changes and adjustments to the various SWMP elements are expected and encouraged where necessary. Changes may be necessary to more successfully adhere to the goals of the permit. Part I.B.7.c of the draft permit describes the allowable procedure for the permittee to make changes to the SWMP. Any changes requested by a permittee shall be reviewed by the EPA and DEP. The EPA and DEP have 60 days to respond to the permittee and inform the permittee if the suggested changes will impact or change the SWMP's compliance with a permit requirement.

c. Additions. The EPA intends to allow the permittee to annex lands, activate new outfalls, deactivate existing outfalls, and accept the transfer of operational authority over portions of the MS4 without mandating a permit modification. Implementation of appropriate SWMP elements for these additions (annexed land or transferred authority) is required. Upon notification of the additions in the Annual Report, the EPA shall review the information to determine if a modification to the permit is necessary based on changed circumstances.

The remaining conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 though 125, and consist primarily of management requirements common to all permits.

II. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the draft permit will be certified.

III. Comment Period, Hearing Requests and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Planning and Administration (SPA), P.O. Box 8127, Boston, MA 02114. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make those responses available to the public at EPA's Boston Office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and to each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision any interested person any submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR §124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

IV. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Jay Brolin
U.S. Environmental Protection Agency
John F. Kennedy Federal Building
Office of Ecosystem Protection (CMA)
Boston, MA 02203-0001
Telephone: (617) 565-9453 Fax: (617) 565-4940

September 2, 1998
Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachment C

Structural Controls: The permittee shall operate the separate storm sewer system and any storm water structural controls in a manner to reduce the discharge of pollutants to the Maximum Extent Practicable. The permittee's existing SWMP includes operation and maintenance procedures to include an inspection schedule of storm water structural controls adequate to satisfy the permit condition.

Areas of New Development and Significant Redevelopment: The permittee has no authority over land use issues. The draft permit is conditioned to require the permittee to coordinate with the appropriate municipal agencies as it relates to discharges to the MS4. The permittee has its own site plan review process relating to new or modified connections for water, sewer, and drains and has the authority to require controls on discharges to the storm drain system during and after construction.

Roadways: The permittee has no authority to ensure that public streets, roads, and highways are operated and maintained in a manner to minimize discharge of pollutants, including those pollutants related to deicing or sanding activities. The draft permit is conditioned to require the permittee to coordinate with appropriate municipal agencies as it relates to discharge to the MS4.

Pesticide, Herbicide, and Fertilizer Application: The permittee shall coordinate with appropriate municipal agencies to evaluate existing measures to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied to public property.

Non-Storm Water discharges: Non-storm water discharges shall be effectively prohibited. However, the permittee may allow certain non-storm water discharges as listed in 122.26(d)(2)(iv)(B)(1) and Part I.B.2 of the draft permit. The permittee has identified allowable non-storm water discharges in its regulations.

The permittee shall implement controls to prevent discharges of dry and wet weather overflows from sanitary sewers into the MS4. The permittee shall also control the infiltration of seepage from sanitary sewers into the MS4. This is presently accomplished through the permittee's illicit connection program and it's Inflow/Infiltration program.

The discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal wastes into the MS4 is prohibited in accordance with the permittee's regulations. The permittee shall coordinate with appropriate

regulations. The permittee shall coordinate with appropriate public and private agencies to ensure continued implementation of programs to collect used motor vehicle fluids (at a minimum, oil and antifreeze) for recycle, reuse, or proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. The City of Boston has an existing program.

Illicit Discharges and Improper Disposal: The BWSC shall continue to implement its program to locate and eliminate illicit discharges and improper disposal into the MS4. This program shall include dry weather screening activities to locate portions of the MS4 with suspected illicit discharges and improper disposal. Follow-up activities to eliminate illicit discharges and improper disposal may be prioritized on the basis of magnitude and nature of the suspected discharge; sensitivity of the receiving water; and/or other relevant factors. This program shall establish priorities and schedules for screening the entire MS4 at least once every five years. At present the permittee has on-going programs in Brighton (BOS 032) discharges to the Charles River, discharges to Brookline's Village and Tannery Brook drainage systems, and discharges through Dedham to Mother Brook. Facility inspections may be carried out in conjunction with other programs (e.g. pretreatment inspections of industrial users, health inspections, fire inspections, etc.).

The BWSC shall eliminate illicit discharges as expeditiously as possible and require the immediate termination of improper disposal practices upon identification of responsible parties. Where elimination of an illicit discharge within sixty (60) days is not possible, the BWSC shall establish an expeditious schedule for removal of the discharge. In the interim, the BWSC shall take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.

Spill Prevention and Response: The permittee shall coordinate with appropriate municipal agencies to implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The existing spill response program in the City includes a combination of spill response actions by the permittee, municipal agencies and private entities. The permittee's regulations include legal requirements for public and private entities within the permittee's jurisdiction.

Industrial & High Risk Runoff: The permittee shall coordinate with EPA and DEP to develop a program to identify and control pollutants in storm water discharges to the MS4 from municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.);

hazardous waste treatment, storage, disposal and recovery facilities and facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge which the permittee determine is contributing a substantial pollutant loading to the MS4 shall be implemented. The program shall include inspections, a monitoring program and a list of industrial storm water sources discharging to the MS4 which shall be maintained and updated as necessary. This requirement is not meant to cover all such discharges, but is intended to prioritize those discharges from this group which are believed to be contributing pollutants to the MS4 and to identify those dischargers which may require NPDES permit coverage or are not in compliance with existing permits.

Construction Site Runoff: The permittee shall coordinate with appropriate municipal agencies to implement a program to reduce the discharge of pollutants from construction sites to the separate storm sewer. This program shall include: requirements for the use and maintenance of appropriate structural and non-structural control measures to reduce pollutants discharged to the MS4 from construction sites; inspection of construction sites and enforcement of control measure requirements required by the permittee; appropriate education and training measures for construction site operators; and notification of appropriate building permit applicants of their potential responsibilities under the NPDES permitting program for construction site runoff and any post-construction permitting.

Public Education: The permittee shall coordinate with appropriate municipal agencies to implement a public education program with the following elements: (a) a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or improper disposal of materials into the MS4; (b) a program to promote, publicize, and facilitate the proper management and disposal of used oil and household hazardous wastes; and (c) a program to promote, publicize, and facilitate the proper use, application, and disposal of pesticides, herbicides, and fertilizers.

ATTACHMENT 8B

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

February 26, 2010

Ms. Janet Moonan
Region 1 (New England)
5 Post Office Square, Suite 100
Mail Code OEP06-1
Boston, MA 02109-3912

Mr. Glen Haas
Massachusetts Department of Environmental Protection
1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection
Metro Boston/Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887
Attn: Mr. Richard Chalpin

Re: Annual Stormwater Management Report
MAS010001 – Boston Water and Sewer Commission

Dear Ms. Moonan and Messrs. Haas and Chalpin:

The Boston Water and Sewer Commission is pleased to provide you with the enclosed Stormwater Management Report for the year 2010. To save resources, this year the Commission is distributing the report on CD. Paper copies of the report are available upon request.

The Commission's NPDES Stormwater Permit (MAS010001) was issued by Environmental Protection Agency and the Massachusetts Department of Environmental Protection on September 29, 1999, and became effective on October 29, 1999. The five year permit expired on October 29, 2004. The Commission's 2003 Stormwater Management Report (submitted February 27, 2004) included the Commission's request for reapplication for an NPDES Stormwater Permit.

We are available at your convenience to meet to discuss the Commission's NPDES Stormwater Permit and Stormwater Management Programs. If you would like to arrange a meeting, or if you have questions or comments concerning the Annual Report, please contact Ms. Amy M. Schofield, Project Manager at extension 7432.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/AS

cc: D. Gray, EPA
F. Civian, DEP
C. Jewell, BWSC

Municipality/Organization: Boston Water and Sewer Commission

EPA NPDES Permit Number: MAS010001

Report/Reporting Period: 2009 (January 1, 2009-December 31, 2009)

NPDES Phase I Permit
Annual Report

General Information

Contact Person: Amy M. Schofield

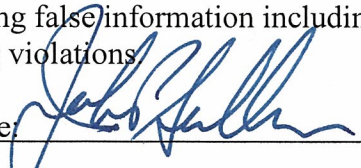
Title: Project Manager

Telephone #: 617-989-7432

Email: Schofieldam@bwsc.org

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Signature:  .

Printed Name: John P. Sullivan, P.E.

Title: Chief Engineer

Date: February 26, 2010

Boston Water and Sewer Commission

2009 Stormwater Management Report

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2009 Stormwater Management Report

1.0 INTRODUCTION

1.1 PERMIT HISTORY

Discharges to the Boston Water and Sewer Commission's (Commission) separate storm drainage system are regulated under the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Permit Regulations. The Commission's NPDES Stormwater Permit (MAS010001) was issued by the EPA and the Massachusetts Department of Environmental Protection (DEP) on September 29, 1999, and became effective on October 29, 1999. The five year permit expired on October 29, 2004. The Commission's 2003 Stormwater Management Report, which was submitted to the EPA on February 27, 2004, constituted the Commission's reapplication for an NPDES Stormwater Permit.

1.2 ANNUAL REPORT REQUIREMENTS

Under the Permit, the Commission is required to develop and implement stormwater pollution prevention and management programs that are designed to reduce, to the maximum extent practicable, the discharge of pollutants to the municipal storm drainage system. In accordance with the NPDES Stormwater Permit (the Permit), the Commission is required to report annually to the EPA and the DEP regarding the status of its pollution prevention and stormwater management programs. This report provides a summary of the stormwater activities undertaken by the Commission in 2009. Provided herein are descriptions of the Commission's outfall screening, stormwater and receiving water monitoring, and illegal connection remediation programs, discussions regarding modifications to these programs, annual expenditures, water quality improvements and an assessment of structural controls.

1.3 COMMISSION JURISDICTION AND LEGAL AUTHORITY FOR DRAINAGE SYSTEM AND STORMWATER MANAGEMENT

The Commission was created pursuant to an act of the Massachusetts Legislature under Chapter 436 of the Acts of 1977 as a political subdivision of the Commonwealth, separate and apart from the City of Boston. The enabling act charged the Commission with the responsibility for the operation and maintenance of the water distribution system and the wastewater collection and stormwater drainage systems which serve the City of Boston. Through its enabling legislation the Commission is empowered to promulgate rules and regulations in order to perform its statutory functions and duties. The Commission's Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains and Requirements for Site Plans are briefly described below. Copies of the

documents are available by contacting the Commission and a downloadable version is available from the Commission's web site located at www.bwsc.org.

Sewer Use Regulations: The majority of the Commission's stormwater management controls are enforced through its Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains (the Sewer Use Regulations). The Sewer Use Regulations were adopted in 1983 and amended in 1989. They were amended again in 1998 to strengthen and clarify the requirements, particularly as they pertain to stormwater discharges. In 1998, the Commission also amended its Penalty Schedule by adding and increasing the fines for several Sewer Use Regulation violations.

General Service Applications and Requirements for Site Plans: The Commission requires that a General Service Application and a site plan be submitted for every new or reconstructed water, sewer, or storm drain service connection. The Requirements for Site Plans are to assist developers, builders, architects, engineers, and others in preparing site plans that conform to the Commission's requirements and to help them secure the necessary approvals from the Commission.

The site plan must be approved by the Commission's Chief Engineer before construction may begin, and it will not be approved unless it complies with the Commission's Requirements for Site Plans and Sewer Use Regulations. The site plan review provides an opportunity to review the components of the project and condition the approval on compliance with the Commission's Sewer Use Regulations, Requirements for Site Plans, and other requirements. The Commission's Requirements for Site Plans are updated as needed, generally about once a year.

1.4 MUNICIPAL STORM DRAINS OWNED BY OTHERS

The Commission controls most of the municipal storm drains in Boston. However, some storm drains and outfalls are owned by other city agencies. For example, drains and outfalls located in the Marine Industrial Park in South Boston are owned and operated jointly by the Economic Development and Industrial Corporation of Boston and the Boston Redevelopment Authority (EDIC/BRA); the Boston Parks Department owns drains in Franklin Park and Boston Common, and in other city parks. Other storm drains and outfall in the city are owned by state agencies, such as the Massachusetts Department of Transportation, Massport, and the state Department of Conservation and Recreation; these drains and outfalls are not controlled by the Commission.

1.5 CHARACTERIZATION OF SEPARATED STORM DRAINAGE AREAS

The Commission currently owns 204 storm drain outfalls. Under the NPDES Stormwater Permit regulations, outfalls are categorized based on their outlet size and zoning in the tributary area. A major outfall is defined as a storm drain outfall that discharges from a single pipe with an inside diameter of 36-inches or more or its equivalent, a storm drain outfall that serves more than 50 acres, or a storm drain outfall that discharges from single

pipe with an inside diameter of 12-inches or more serving an industrial-zoned area. A non-major outfall is essentially any outfall that is not a major outfall.

In the summer of 2007, the Commission reviewed all of the major and non-major outfall sizes and zoning in the tributary areas, to determine if changes in categorizations were warranted. Several outfalls were re-categorized differently as a result. The resultant changes were reported in the 2007 Stormwater Management Report.

The Commission currently owns 97 major outfalls (shown in Table 1 – 1). Outfall 16L122 on Morrissey Boulevard has been added to the major outfall list since the last report. The Morrissey Boulevard Drainage Conduit (MBDC) project was undertaken by the Commission on behalf of the Massachusetts Water Resources Authority in conjunction with the Authority's North Dorchester Bay CSO Storage Tunnel (NDBST) Project. The MBDC currently collects stormwater flows from Morrissey Boulevard and its side roads, and conveys it to Dorchester Bay. Stormwater discharges to the MBDC are treated by several particle separators that were constructed on storm drains serving businesses along Morrissey Boulevard. The new particle separators are owned and maintained by the owners of the properties where they are located.

Another major outfall added to the list since the last report is 18L087. Separation of the area upstream of 18L087 was recently completed, and now only stormwater is conveyed through the outfall. Once MWRA completes the NDBST Project, stormwater flows from the recently separated area tributary to BOS087 generated from smaller storms will be conveyed to the NDBST and to Deer Island to be treated, while stormwater flows generated from larger storms will be directed to the MBDC. This will allow for the elimination of outfall BOS087 located near Mother's Rest.

The Commission currently owns 107 non-major outfalls (shown in Table 1 – 2). Outfall 05E184 and 12F305 were added to the list of non-major outfalls. Although they were shown on the drainage area map, the numbers were inadvertently left off the list of non-major outfalls. Outfall 04F191 has been removed from the list of non-major outfalls, since field investigations confirmed that it doesn't exist. Drainage from the area that was previously thought to discharge through outfall 04F191 discharges through a DCR owned outfall 03F162.

Table 1-3 lists areas with Commission owned storm drains that do not discharge to an outfall, rather they discharge through a manhole to storm drains owned by others.

Due to major sewer separation projects over the last decade, the amount of area in Boston served by separated storm drains has increased by an estimated 3,420 acres, for a current total of 17,554 acres, or approximately 57 percent of Boston. The remainder of the area is served by combined sewers, sanitary sewers only, or is open space with no sewers or drains.

1.6 MAPPING OF DRAINAGE AREAS AND STORMWATER OUTFALL LOCATIONS

The map (Figure 1) at the end of this section shows the locations of the Commission's storm drain outfalls and their tributary areas. The newly separated areas discharging to Dorchester Bay through outfalls 15L088/089 and 15L090 have been added to the map. Also shown on the map is the separated areas tributary to the Stony Brook Conduit. The drainage areas tributary to outfalls 16L122 and 18L087 are not yet shown on the map, since as-built plans are still being finalized. Once the as-built plans are completed, the drainage areas will be added to the Commission's GIS and to the drainage area map.

Table 1-1 Major Stormwater Outfalls

OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER
08B122	EASEMENT/NORTH OF SPRING ST.	WEST ROXBURY	30	CHARLES RIVER
09B049	EASEMENT/RIVERMOOR ST	WEST ROXBURY	30	COW ISLAND POND/CHARLES RIVER
10B015	EASEMENT/CHARLES RIVER ROAD	WEST ROXBURY	21	COW ISLAND POND/CHARLES RIVER
11B123	EASEMENT/EAST OF BAKER ST EXT.	WEST ROXBURY	72	BROOK FARM BROOK/CHARLES RIVER
12B124	EASEMENT/LAGRANGE STREET	WEST ROXBURY	120	BROOK FARM BROOK
06C110	EASEMENT/PLEASANTDALE ST EXT	WEST ROXBURY	60	CHARLES RIVER
07C006	EASEMENT/VFW PARKWAY/BELLE AVE	WEST ROXBURY	126X126	CHARLES RIVER
08C025/26	WEDGEMERE ROAD	WEST ROXBURY	two 24	NONE SHOWN
14C009	EASEMENT/WESTGATE RD	WEST ROXBURY	36	UNNAMED WETLANDS
22C384	EASEMENT/LAKE SHORE RD	ALLSTON/BRIGHTON	36	CHANDLER POND
06D097	EASEMENT/EDGEMERE ROAD	WEST ROXBURY	51	NONE SHOWN
06D187	EASEMENT/GROVE ST	WEST ROXBURY	36	BROOK GROVE ST CEMETERY
13D077/078	WEST ROXBURY PKY/VFW PKY	WEST ROXBURY	2-60	BUSSEY BROOK
24D032	N OF BEACON ST, ABOUT 800' E OF PARSONS ST	ALLSTON/BRIGHTON	119X130	CHARLES RIVER
24D150	SOLDIERS FIELD PLACE	ALLSTON/BRIGHTON	36	CHARLES RIVER
25D040	ABOUT 390' N OF INTERSECTION OF SOLDIERS FIELD RD & WESTERN AVE	ALLSTON/BRIGHTON	36	CHARLES RIVER
01E024	EASEMENT/LAKESIDE	HYDE PARK	15	SPRAGUE POND/NEPONSET RIVER
03E185	NORTON ST	HYDE PARK	2-18	WETLANDS/NEPONSET RIVER
04E069	KNIGHT ST DAM	HYDE PARK	36	MOTHER BROOK
13E175	EASEMENT/VFW PKY	ROSLINDALE	108X86	BUSSEY BROOK
25E037	EASEMENT/TELFORD ST	ALLSTON/BRIGHTON	66	CHARLES RIVER
01F031	EASEMENT/MILLSTONE RD	HYDE PARK	48X24	NEPONSET RIVER
02F120	EASEMENT/WOLCOTT CT/HYDE PARK AVE EXT	HYDE PARK	54	NEPONSET RIVER
04F119	EASEMENT/HYDE PARK AVE/RESERVATION RD	HYDE PARK	24	NEPONSET RIVER
04F189	RESERVATION RD	HYDE PARK	36	MOTHER BROOK/NEPONSET RIVER
04F204	TRUMAN HWY/CHITTICK ST	HYDE PARK	36	NEPONSET RIVER
05F117	EASEMENT/TRUMAN HWY/WILLIAMS AVE	HYDE PARK	33	NEPONSET RIVER
05F253	EASEMENT/BUSINESS ST, NEAR BUSINESS TER	HYDE PARK	48X24	MOTHER BROOK/NEPONSET RIVER
15F288	ARNOLD ARBORETUM/MURRAY CIRCLE	JAMAICA PLAIN	54	GOLDSMITH BROOK
26F038	HARVARD ST EXT	ALLSTON/BRIGHTON	36	CHARLES RIVER
05G112	EASEMENT/RR ROW/WATER ST EXT	HYDE PARK	30	NEPONSET RIVER
05G115	FAIRMOUNT AVE BRIDGE (NORTH BANK)	HYDE PARK	24	NEPONSET RIVER
06G108	EASEMENT/WEST OF WOOD AVE EXT	HYDE PARK	69	NEPONSET RIVER
06G109	RIVER TER EXT, NEAR ROSA ST	HYDE PARK	48	NEPONSET RIVER
06G110	EASEMENT/WEST STREET EXT	HYDE PARK	30	NEPONSET RIVER
06G166	ABOUT 30' FROM GUARDRAIL NORTH SIDE OF TRUMAN HWY NEAR MILTON	HYDE PARK	36X36	NEPONSET RIVER
19G043	HUNTINGTON AVE	ROXBURY/MISSION HILL	45X45	MUDDY RIVER
19G194	SOUTH HUNTINGTON AVE	ROXBURY/MISSION HILL	24	MUDDY RIVER
20G161	EASEMENT/BROOKLINE AVE	ROXBURY/MISSION HILL	36	MUDDY RIVER
23G132	EASEMENT/MASS TURNPIKE/WEST OF BU BRIDGE	ALLSTON/BRIGHTON	60	CHARLES RIVER
24G034	SOLDIERS FIELD ROAD, S OF CAMBRDIGE ST	ALLSTON/BRIGHTON	36	CHARLES RIVER
24G035	SOLDIERS FIELD ROAD/BABCOCK ST	ALLSTON/BRIGHTON	90X84	CHARLES RIVER
26G001	SOLDIERS FIELD ROAD/EAST OF HARVARD UNIVERSITY	ALLSTON/BRIGHTON	36	CHARLES RIVER
07H285	BLUE HILL AVE	NEPONSET/MATTAPAN	106X63	NEPONSET RIVER
07H105	EASEMENT/EDGEWATER/S RIVER ST	NEPONSET/MATTAPAN	102X72	NEPONSET RIVER
12H092	AMERICAN LEGION HIGHWAY	WEST ROXBURY	24	CANTERBURY BROOK
23H042	DEERFIELD ST	BOSTON PROPER	116X120	CHARLES RIVER
11I577	HARVARD ST	NEPONSET/MATTAPAN	102X102	CANTERBURY BROOK
08J49/50	DESMOND RD	DORCHESTER	2-18&24	NEPONSET RIVER
27J001	EASEMENT/INTERSTATE 93	CHARLESTOWN	72	MILLERS RIVER
27J044	PRISON POINT BRIDGE	CHARLESTOWN	15	MILLERS RIVER
27J096	EASEMENT/INTERSTATE 93	CHARLESTOWN	54	MILLERS RIVER
29J129	ALFORD STREET	CHARLESTOWN	15	MYSTIC RIVER
29J212	EASEMENT/MEDFORD ST(NEXT TO CSO 017)	CHARLESTOWN	72	MYSTIC RIVER
30J006	EASEMENT/ALFORD ST	CHARLESTOWN	18	MYSTIC RIVER
30J019	ALFORD ST	CHARLESTOWN	15	MYSTIC RIVER
30J030	EASEMENT/ARLINGTON AVE	CHARLESTOWN	42	MYSTIC RIVER
09K100	EASEMENT/MELLISH RD	DORCHESTER	34X24	NEPONSET RIVER

Table 1-1 Major Stormwater Outfalls

OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER
21K069	125' NORTH OF W.FOURTH STREET (RELOCATED BY CA/T)	BOSTON PROPER	48	FORT POINT CHANNEL
26K035	BEVERLY STREET NEAR WARREN BRIDGE	BOSTON PROPER	48x72	CHARLES RIVER
26K099	CHELSEA ST EXT (JOINER ST)	CHARLESTOWN	84	CHARLES RIVER
28K010	OLD LANDING WAY EXT	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL
28K061	EASEMENT/MEDFORD ST	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL
28K386	EASEMENT/TERMINAL ST	CHARLESTOWN	30	LITTLE MYSTIC CHANNEL
09L095	GRANITE AVENUE	DORCHESTER	36X48	NEPONSET RIVER
10L094	EASEMENT/GALLIVAN BLVD	DORCHESTER	74X93	NEPONSET RIVER VIA DAVENPORT BROOK
10L096	HILLTOP & LEXONDALE STS	DORCHESTER	36	NEPONSET RIVER
12L092	PINE NECK CREEK/TENEAN ST WEST OF LAWLEY	DORCHESTER	72	NEPONSET RIVER
12L296	CONLEY STREET	DORCHESTER	42	NEPONSET RIVER/DORCHESTER BAY
13L090	VICTORY RD. 200 FT SOUTH	DORCHESTER	144X180	DORCHESTER BAY
15L088	FREEPORT WAY EXTENDED	DORCHESTER	2-78"	DORCHESTER BAY
15L089	FOX POINT RD EXTENDED	DORCHESTER	2-90X82"	DORCHESTER BAY
16L122	MORRISSEY BLVD DRAIN	DORCHESTER	TWIN 9X8	DORCHESTER BAY
18L087	MOUNT VERNON/MORRISSEY BLVD	DORCHESTER	2-84x96	DORCHESTER BAY
22L580	NECCO STREET EXTENDED	SOUTH BOSTON	54	FORT POINT CHANNEL
23L075	CONGRESS ST BRIDGE	SOUTH BOSTON	54	FORT POINT CHANNEL
23L164	CONGRESS ST BRIDGE	BOSTON PROPER	48	FORT POINT CHANNEL
23L195	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR
23L196	NEW NORTHERN AVE BRIDGE	SOUTH BOSTON	36	FORT POINT CHANNEL
23L202	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR
24L233	ROWE'S WHARF/ATLANTIC AVE	BOSTON PROPER	42	BOSTON HARBOR
25L058	CHRISTOPHER COLUMBUS PARK-WATERFRONT	BOSTON PROPER	84	BOSTON INNER HARBOR
26L055	NEAR BATTERY WHARF	BOSTON PROPER	24X24	BOSTON INNER HARBOR
26L070	HANOVER ST EXT	BOSTON PROPER	36	BOSTON INNER HARBOR
26L084	LEWIS STREET	EAST BOSTON	18	BOSTON INNER HARBOR
27L020	PIER 4 EASEMENT - NAVY YARD	CHARLESTOWN	2-20&24	BOSTON INNER HARBOR
28L074/075/076	16TH ST/4TH AVE - NAVY YARD	CHARLESTOWN	3-30	LITTLE MYSTIC CHANNEL
11M093	NEPONSET AVE AT NW END OF NEPONSET AVE BRIDGE	DORCHESTER	48	NEPONSET RIVER
12M091	ERICSSON/WALNUT ST	NEPONSET/MATTAPAN	36	NEPONSET RIVER
17M033	HARBOR POINT PARK (RELOCATED MT VERNON ST DRAIN)	DORCHESTER	72	OLD HARBOR
21M010	D STREET EXTENDED	SOUTH BOSTON	30	RESERVED CHANNEL
21M050	SUMMER STREET	SOUTH BOSTON	72	RESERVED CHANNEL
29M049	CONDOR STREET	EAST BOSTON	48	CHELSEA RIVER
28N207	MOORE ST	EAST BOSTON	54X57	BOSTON HARBOR
29N015	CHELSEA STREET	EAST BOSTON	42X44.5	CHELSEA RIVER
29N135	ADDISON ST	EAST BOSTON	30X30	CHELSEA RIVER
29O001	BENNINGTON ST (CONSTITUTION BEACH)	EAST BOSTON	66	BOSTON HARBOR NEAR CONSTITUTION BEACH

Table 1-2 Non-major Stormwater Outfalls

OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER
08B126	SPRING STREET EXTENDED	WEST ROXBURY	30	CHARLES RIVER
12B010	BAKER STREET	WEST ROXBURY	15	BROOK FARM BROOK
12B014	BAKER STREET	WEST ROXBURY	12	BROOK FARM BROOK
12B031	EASEMENT/BAKER STREET	WEST ROXBURY	18	BROOK FARM BROOK
12B033	EASEMENT/BAKER STREET	WEST ROXBURY	18	BROOK FARM BROOK
13B011	LAGRANGE STREET	WEST ROXBURY	12	UNNAMED STREAM
21C212	EASEMENT/LAKE SHORE ROAD	ALLSTON/BRIGHTON	30	CHANDLER POND
24C174	EASEMENT/NEWTON STREET	ALLSTON/BRIGHTON	24	CHARLES RIVER
06D057	CEDAR CREST CIRCLE	WEST ROXBURY	21	CHARLES RIVER
06D083	MARGARETTA DRIVE	WEST ROXBURY	15	WETLANDS/CHARLES RIVER
06D084	EASEMENT/MARGARETTA DRIVE	WEST ROXBURY	12	WETLANDS/CHARLES RIVER
06D085	GEORGETOWN DRIVE	WEST ROXBURY	12	WETLANDS/CHARLES RIVER
06D086	GEORGETOWN DRIVE	WEST ROXBURY	10	WETLANDS/CHARLES RIVER
06D091	GEORGETOWN DRIVE	WEST ROXBURY	10	WETLANDS/CHARLES RIVER
06D184	GEORGETOWN DRIVE	WEST ROXBURY	18	WETLANDS/CHARLES RIVER
02E086	WEST MILTON STREET	HYDE PARK	24	UNAMED WETLANDS
03E186	RIVER STREET	HYDE PARK	24	MILL POND/MOTHER BROOK
03E207	RIVER STREET	HYDE PARK	UNKNOWN	MILL POND/MOTHER BROOK
04E064	ALVARDO AVE/RIVER ST BRIDGE	HYDE PARK	12	MILL POND/MOTHER BROOK
05E180	GEORGETOWN DRIVE	HYDE PARK	12	NONE SHOWN/CHARLES RIVER
05E181	GEORGETOWN DRIVE	HYDE PARK	12	NONE SHOWN/CHARLES RIVER
05E182	DEDHAM STREET	HYDE PARK	21	UNNAMED STREAM/CHARLES RIVER
05E183	GEORGETOWN PLACE/DEDHAM ST	HYDE PARK	12	UNNAMED STREAM
05E184	TURTLE POND PARKWAY	HYDE PARK	21	UNAMED WETLANDS
08E031	TURTLE POND PARKWAY	WEST ROXBURY	18	TURTLE POND
08E033	TURTLE POND PARKWAY	WEST ROXBURY	UNKNOWN	TURTLE POND
08E035	WASHINGTON STREET	WEST ROXBURY	15	TURTLE POND
09E229	GRANDVIEW STREET	WEST ROXBURY	12	NONE SHOWN
09E243	BLUE LEDGE TR/EASEMENT	WEST ROXBURY	30	UNNAMED STREAM
13E176	EASEMENT/WELD ST	ROSLINDALE	15	NONE SHOWN
13E174	EASEMENT/VFW PARKWAY	ROSLINDALE	24	BUSSEY BROOK
02F085	LAWTON STREET	HYDE PARK	12	NEPONSET RIVER RESERVATION
02F093	EASEMENT/SIERRA RD	HYDE PARK	15	NEPONSET RIVER
04F016	EASEMENT RIVER ST	HYDE PARK	30	MOTHER BROOK/NEPONSET RIVER
04F118	MASON STREET EXT.	HYDE PARK	18	NEPONSET RIVER
04F203	GLENWOOD AVE	HYDE PARK	28	NEPONSET RIVER
05F244	HYDE PARK AVE BRIDGE	HYDE PARK	20	MOTHER BROOK/NEPONSET RIVER
05F245	HYDE PARK AVE	HYDE PARK	33	MOTHER BROOK/NEPONSET RIVER
05F254	DANA AVENUE	HYDE PARK	12	NEPONSET RIVER
06F233	MOUNT ASH ROAD	HYDE PARK	UNKNOWN	WETLAND - STONY BROOK RESERVATION
12F305	EASEMENT/ARBOROUGH ROAD	ROSLINDALE	12	UNAMED WETLANDS
12F418	EASEMENT/WALTER STREET (renumbered from 12F322)	ROSLINDALE	18	NONE SHOWN
13F095	EASEMENT/BUSSEY STREET	ROSLINDALE	12	BUSSEY BROOK
13F093	WALTER STREET	ROSLINDALE	15	BUSSEY BROOK
13F011	ALLANDALE STREET	ROSLINDALE	24	BUSSEY BROOK
17F012	FRANCIS PARKMAN DRIVE	JAMAICA PLAIN	15	JAMAICA POND
05G116	FAIRMOUNT AVE BRIDGE (SOUTH BANK)	HYDE PARK	24	NEPONSET RIVER
05G116A	WARREN AVENUE	HYDE PARK	24	NEPONSET RIVER
06G111	EASEMENT/VOSE ST EXT., TRUMAN HWY	HYDE PARK	24	NEPONSET RIVER
06G165	TRUMAN HWT/METROPOLITAN AVE	HYDE PARK	10	NEPONSET RIVER
11G318	CULVERT UNDER WALK HILL STREET	ROSLINDALE	24	CANTERBURY BROOK
11G319	CULVERT UNDER WALK HILL STREET	ROSLINDALE	18	CANTERBURY BROOK
18G233	X-COUNTRY BTN WILLOW POND RD AND JAMAICAWAY	JAMAICA PLAIN	18	MUDDY RIVER-LEVERETT POND
19G199	JAMAICA WAY	ROXBURY/MISSION HILL	10	MUDDY RIVER
20G163	EASEMENT/RIVERWAY	ROXBURY/MISSION HILL	20	MUDDY RIVER

Table 1-2 Non-major Stormwater Outfalls

OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER
25G006	FROM WESTERN AVE BRIDGE	ALLSTON/BRIGHTON	12	CHARLES RIVER
25G041	SOLDIERS FIELD RD/NORTH OF WESTERN AVE BRIDGE	ALLSTON/BRIGHTON	24	CHARLES RIVER
06H106	OSCEOLA STREET	HYDE PARK	24	NEPONSET RIVER
06H107	EASEMENT/BELNEL RD	HYDE PARK	24	NEPONSET RIVER
07H287	RIVER STREET/EDGEWATER DRIVE	NEPONSET/MATTAPAN	12	NEPONSET RIVER
07H346	EDGEWATER DRIVE/HOLMFIELD AVE	HYDE PARK	18	NEPONSET RIVER
07H347	EDGEWATER DRIVE/BURMAH ROAD	NEPONSET/MATTAPAN	21	NEPONSET RIVER
07H348	EDGEWATER DRIVE/TOPALIAN STREET	NEPONSET/MATTAPAN	24	NEPONSET RIVER
12H085	MORTON STREET	ROSLINDALE	15	CANTERBURY BROOK
12H087	MORTON STREET	ROSLINDALE	15	CANTERBURY BROOK
21H039	FENWAY	BOSTON PROPER	30X30	MUDDY RIVER
21H047	PALACE ROAD EXT	BOSTON PROPER	24	MUDDY RIVER
21H048	EASEMENT/FENWAY/EVANS WAY	BOSTON PROPER	15	MUDDY RIVER
21H201	PALACE ROAD EXT	BOSTON PROPER	6	MUDDY RIVER
23H040	RALEIGH STREET EXT	BOSTON PROPER	24	CHARLES RIVER
08I153	DUXBURY ROAD	NEPONSET/MATTAPAN	15	NEPONSET RIVER
08I154	EASEMENT/RIVER ST/GLADESIDE AVE	NEPONSET/MATTAPAN	18	NEPONSET RIVER
08I155	EASEMENT/RIVER ST/MAMELON CIR	NEPONSET/MATTAPAN	24	NEPONSET RIVER
08I156	EASEMENT/RIVER ST/MAMELON CIR	NEPONSET/MATTAPAN	24	NEPONSET RIVER
08I158	EASEMENT/RIVER ST/FREMONT ST	NEPONSET/MATTAPAN	18	NEPONSET RIVER
08I207	MEADOWBANK AVE EXT	NEPONSET/MATTAPAN	15	NEPONSET RIVER
08I209	MEADOWBANK AVE EXT	NEPONSET/MATTAPAN	12	NEPONSET RIVER
08J041	RIVER STREET	DORCHESTER	18	NEPONSET RIVER
08J102	ADAMS STREET	DORCHESTER	15X15	NEPONSET RIVER
08J103	EASEMENT/CENTRAL AVE BRIDGE	DORCHESTER	30	NEPONSET RIVER
26J052	MONSIGNOR O'BRIEN HWY	BOSTON PROPER	12	CHARLES RIVER
26J055	LEVERETT CIRCLE	BOSTON PROPER	12	CHARLES RIVER
29J029	ALFORD STREET/RYAN PLGD. EXT	CHARLESTOWN	15	MYSTIC RIVER
08K049	BEARSE AVENUE	DORCHESTER	12	NEPONSET RIVER
09K016	EASEMENT/BEARSE AVE EXT	DORCHESTER	15	NEPONSET RIVER
09K101	EASEMENT/HUNTOON ST EXT	DORCHESTER	24	NEPONSET RIVER
26K052	COMMERCIAL STREET AT CHARTER ST.	BOSTON PROPER	16x24	CHARLES RIVER
26K245	EASEMENT	CHARLESTOWN	15	CHARLES RIVER
16L097	EASEMENT/OFF SAVIN HILL AVE	DORCHESTER	24	PATTEN'S COVE
20L081	EAST FIRST STREET	SOUTH BOSTON	20	RESERVED CHANNEL
20L083	EAST FIRST STREET	SOUTH BOSTON	20	RESERVED CHANNEL
23L015	NORTHERN AVE	SOUTH BOSTON	24	BOSTON INNER HARBOR
23L016	NORTHERN AVE	SOUTH BOSTON	2-15&16	BOSTON INNER HARBOR
23L074	SUMMER ST BRIDGE	SOUTH BOSTON	15	FORT POINT CHANNEL
24L057	STATE STREET EXT	BOSTON PROPER	18X18	BOSTON INNER HARBOR
25L144	CLARK STREET	BOSTON PROPER	12	BOSTON INNER HARBOR
28L073	EASEMENT/4TH ST - NAVY YARD	CHARLESTOWN	6	LITTLE MYSTIC CHANNEL
28L077	EASEMENT/4TH ST - NAVY YARD	CHARLESTOWN	10	LITTLE MYSTIC CHANNEL
28N156	COLERIDGE ST EXT	EAST BOSTON	12	BOSTON HARBOR
28O025	COLERIDGE/WADSWORTH ST. EXT	EAST BOSTON	30	BOSTON HARBOR
31O004	EASEMENT/WALDEMAR AVE	EAST BOSTON	15	CHELSEA RIVER
28P001	EASEMENT/NANCIA STREET	EAST BOSTON	12	BOSTON HARBOR NEAR CONSTITUTION BEACH
29P015	EASEMENT/BARNES AVE	EAST BOSTON	12	BELLE ISLE INLET
29P044	SHAWSHEEN ST	EAST BOSTON	12	BOSTON HARBOR
30P062	PALERMO AVE EXT	EAST BOSTON	12	WETLANDS
30P107	WALDEMAR AVENUE	EAST BOSTON	15	WETLANDS
31P084	EASEMENT/BENNINGTON ST	EAST BOSTON	30	BELLE ISLE INLET, REVERE

Table 1-3 Drainage Areas to Drains Owned by Others

MANHOLE NUMBER	LOCATION	NEIGHBORHOOD	RECEIVING WATER	COMMENTS/NOTES
23BMH089	HUNNEWELL AVENUE	BRIGHTON	TO NEWTON DRAINS	DRAIN TO NEWTON
24CMH014	NEWTON STREET	BRIGHTON	TO NEWTON DRAINS	DRAIN TO NEWTON
20DMH019	PRENDERGAST AVE (BC/CHESTNUT HILL RESERVOIR)	BRIGHTON	TO BROOKLINE DRAINS	DRAIN TO BROOKLINE
21DMH319	VILLAGE BROOK-KILSYTH	BRIGHTON	BROOKLINE DRAINS TO VILLAGE BROOK	DRAIN TO BROOKLINE
21DMH055	VILLAGE BROOK-STRATHMORE	BRIGHTON	BROOKLINE DRAINS TO VILLAGE BROOK	DRAIN TO BROOKLINE
21EMH064	TANNERY BROOK	BRIGHTON	BROOKLINE DRAINS TO TANNERY BROOK	DRAIN TO BROOKLINE
21EMH086	VILLAGE BROOK-CUMMINGS	BRIGHTON	BROOKLINE DRAINS TO VILLAGE BROOK	DRAIN TO BROOKLINE
04FMH090	FARADAY STREET	HYDE PARK	DCR DRAIN TO NEPONSET	DISCHARGES TO DCR OF 03F162
03FMH056	WAKEFIELD AVENUE	HYDE PARK	DCR DRAIN TO NEPONSET	DISCHARGES TO DCR OF 03F159
28MMH015	ROLAND STREET	CHARLESTOWN	TO SOMERVILLE DRAINS	DRAIN TO SOMERVILLE

N

ARLINGTON

MEDFORD

BELMONT

EVERETT

CHELSEA

SOMERVILLE

CAMBRIDGE

WATERTOWN

NEWTON

BROOKLINE

WINTH

QUINCY

MILTON

DEDHAM

BRAINTREE

LEGEND

Outfalls

- Non-Major
- Major

Storm Drain Tributary Areas

- CWI
- Investigation Complete
- Phase 2
- Uninvestigated

STORM DRAIN OUTFALLS, TRIBUTARY AREAS AND STATUS OF INVESTIGATIONS

Boston Water & Sewer Commission

2.0 ILLEGAL CONNECTION REMEDIATION AND OUTFALL SCREENING

The Commission identifies illegal sanitary connections to storm drains through several means, including storm drain and outfall inspections performed by Commission personnel and consultants, inspections performed by contractors, and through reports from agencies, organizations, and citizens.

In 2009, the Commission continued implementing illegal connection investigations citywide, and performed targeted investigations in specific drainage areas, as described below.

2.1 ILLEGAL CONNECTION IDENTIFICATION BY COMMISSION STAFF

Illegal connection investigations are performed by Commission consultants, as well as by in-house staff. Investigations performed by consultants are described in Section 2.2 below. Routine reports of suspected illegal sanitary connections from contractors, agencies, organizations, citizens, and others are usually directed to the Commission's Field Engineering Division. Field Engineering is currently comprised of six (6) day-shift (including Saturday) crews, plus a Manager of Field Engineering, a Systems Engineer, and five (5) Field Engineers. One Field Engineer and two Field Engineering crews spend about 15 percent of their time investigating illegal sanitary connections.

Illegal connection related work performed by Field Engineering staff in 2009 focused on performing targeted investigations, and providing field support to the Commission's consultant for the Citywide Illegal Connection Investigation Phase 2 program (Phase 2), which is described below. The methodology for investigations performed by Field Engineering vary, but usually consist of spot inspection of manholes, dye testing of buildings, video inspections of pipes, and occasionally sandbagging of manholes. Special investigations were carried out in the 13L090 (Victory Rd.), 18G233 (Daisy Field), 04F204 (Chittick), and 05F117 (Williams) areas.

Assistance provided for the Phase 2 varied, but included: dye testing properties where additional information or confirmation of an illegal connection were needed; investigating properties where conflicting dye test results were previously obtained; dye testing to confirm correction of illegal connections by owners; and dye flooding sewers to identify or confirm possible structural problems in Commission owned sewer/drain pipes.

2.2 ILLEGAL CONNECTION INVESTIGATION CONTRACTS

Since 1999, the Commission has executed three contracts to have consultants perform illegal connection investigations of the Commission's drainage system. The Stony Brook Illegal Connection Investigation (SBI) Program was carried out between 1999 and 2005, at a cost of $1,478,709, plus $57,388 for police details. The Citywide Illegal Connection Investigation (CWI or Phase 1) Program began in 2004 and concluded in February, 2009. Total cost for the program was $1,536,000, plus an additional $71,898 for police details. Under the SBI and CWI, a total of 4,255 manholes were inspected and 6,791 buildings were dye tested.

These costs for the SBI and CWI programs do not include the cost to correct the illegal connections found, nor do they include other costs borne by the Commission for activities, such as performing additional dye tests, cleaning pipes and manholes, program management, construction oversight and other support services.

In October 2008, the Commission executed a contract for continuation of its Citywide Illegal Connection Investigation Program. The contract duration for the Phase 2 program is four years. Under the Citywide Illegal Connection Investigation Program, Phase 2 (CWI2 or Phase 2), investigations were initiated in 77 new drainage areas. Investigations in 25 drainage areas begun under the previous programs, but incomplete at the close of Phase 1, were continued. Under Phase 2, a total of 1,120 manhole inspections were performed and 565 buildings were dye tested in 2009.

Total estimated cost for Phase 2 is $1,360,000. As of the end of 2009, $524,460 had been expended for the contract services under Phase 2, and $35,388 had been spent on police details for the project.

The cost borne by the Commission to correct 27 illegal connections in 2009 was approximately $212,000, not including the cost for police details or for permanent paving over the excavations. This cost does not include costs borne by the owners who were required to correct illegal connections on their own properties.

2.3 INVESTIGATION METHODOLOGY

The Commission's method for illegal connection investigations under the SBI, Phase 1 and Phase 2 is a "top-down" approach, meaning that the investigations start at the upper reaches of drainage areas and proceed downstream as illegal connections and other problems are identified and resolved. Visual inspections of storm drain manholes are performed after 24-48 hours of dry weather. If flow is observed in a manhole, the flow is tested in the field for ammonia and surfactants using a field test kit. If no flow is observed, manholes at key junctions of the sub-drainage area are sandbagged for 48 hours to capture possible intermittent flow from upstream storm drains. Any flow that is captured after 48 hours of sandbagging is inspected and field tested for evidence of contamination. If evidence of contamination exists, upstream buildings are dye tested to determine the source of the contamination. Once the source is located, it is added to a

Commission construction contract for correction. After the source of the contamination is eliminated, a post correction check of the drain is performed using similar investigative procedures. This ensures that no sources of contamination are missed.

Because upstream contamination sources influence downstream results, inspections of storm drains immediately downstream of illegal connections are suspended until the sources of contamination are eliminated. To continue making progress, field crews shift their investigations to uninvestigated areas, or resume downstream investigations in other areas where the storm drains have been cleared of upstream contamination.

In a few isolated cases, despite having dye tested all buildings adjacent to a contaminated stretch of drain, no illegal connections are identified. The Commission refers to these cases as "anomalies". Anomalies involve additional investigative measures, such as jet cleaning the drain and re-inspecting the contaminated manhole; dye testing different fixtures in buildings already dye tested; inspecting and sandbagging manholes located further upstream and downstream of the contaminated stretch; dye testing buildings located further upstream and downstream of the contaminated stretch; and inspecting the contaminated drain and adjacent sewer with a video camera, to determine if there are any structural defects possibly allowing cross contamination.

Causes of anomalies vary, but may include: connection of a single fixture, such as a washing machine, to an internal building drain (the rest of the plumbing in the building is properly connected to the sewer system); a contamination source located further upstream or downstream of the stretch where the contamination was originally observed; (c) defects in the main drain and sewer allowing sanitary sewage to enter the storm drain. Occasionally, upon re-inspecting or sandbagging a manhole, contamination is not longer evident. In these cases crews are allowed to move investigations downstream, although records of the anomaly are maintained in the event that the contamination reappears.

If crews are unsuccessful in locating the source of contamination; if the property owner is required to pay for and correct a problem; if a special engineering design or capital improvement is needed to repair or redirect pipes; then downstream progress can be impeded. Wet weather and the winter snow and ice season also delay progress, since manhole inspections and sandbagging must be performed during dry weather. Delays occur when debris, sediments, blockages or standing water are encountered in drains, since these hinder visual inspections and can prevent the use of sandbags.

In the last several years, in order to advance progress downstream of contaminated storm drains, field crews have been experimenting with "work around methods". For example, sandbags might be temporarily installed in manholes immediately downstream of a contaminated stretch of storm drain to block the contaminated flow. Then dry weather manhole inspections can proceed downstream. Crews also performed spot inspections of manholes several manholes downstream of a contaminated section, to determine if there was any visual or olfactory evidence of contaminated flow. In some areas, all buildings immediately downstream of known contamination sources were dye tested. Although these work around methods are not as thorough as the sandbag method in finding illegal

connections, their use enable the Commission to advance work progress downstream in a few areas. The Commission has had limited success in working around problem areas, but will continues to explore additional methods.

At times during investigations it is necessary to suspend inspections and sandbagging of manholes due to seasonal or short-term conditions (e.g. wet weather or winter conditions). During those periods, progress is advanced in drainage areas regardless of priority, using alternative methods for investigation. For example, in Phase 1, in some of the smaller drainage areas (those with 50 buildings or less), all of the buildings, were dye tested during the winter months, as opposed to inspecting and sandbagging storm drains.

Also, it is necessary at times to shift the types of work being performed in drainage areas to take advantage of specific weather conditions. For example, when a stretch of dry weather is anticipated, crews dye testing in one drainage area will shift to another drainage area to perform dry weather manhole inspections and sandbagging.

2.4 OUTFALL SCREENING

Dry Weather Outfall Screening 2004-2005

Under the Permit, the Commission was required to perform dry weather outfall screening of all major outfalls at least once during the Permit term. Screening consisted of visual inspection of the outfall structure after 24 to 72 hours of antecedent dry weather, and completion of a field inspection form. If the outfall structure was not accessible, the nearest upstream manhole not subject to tidal influence or backflow was inspected. If flow was observed, the physical characteristics (e.g. color, visible sheen, turbidity, floatables, smell, and estimate of flow) were recorded and a grab sample was collected and analyzed for surfactants and ammonia using a portable field test kit.

During the 1999-2004 permit term, the Commission completed screening of its major outfalls in accordance with the permit requirements. The data from the outfall field screening completed during the permit term was presented in the 2004 Stormwater Management Report, and Table 2-1 presents the results. Approximately one half of the outfalls were screened by different Commission field crews over a period of several years. The remaining outfalls were screened by the Commission's consultant under the Citywide Illegal Connection Investigation (CWI) Program.

2.5 DRAINAGE AREA INVESTIGATION PRIORITIZATION

a. Phase 1 Drainage Area Investigation Prioritization Methodology

In early 2005, under Phase 1, a methodology was developed for prioritizing drainage areas to be investigated under the program using the field screening data as the basis. The methodology assigned outfalls to initial categories based on the sensitivity of the water bodies or location to which the outfalls discharge, and the types of contamination

Table 2 - 1
Major Stormwater Outfalls
Field Screening Results 2000-2004

YEAR SCREENED	OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER	LAST RAIN	INSP./SAMPLE LOCATION	FLOW	VELOCITY (feet per second)	COLOR	CLARITY	SURFAC-TANTS (MG/L)	AMMONIA (MG/L)	COMMENTS/NOTES
2000	09B049	EASEMENT/RIVERMOOR ST	WEST ROXBURY	30	COW ISLAND POND/CHARLES RIVER	>72Hrs.	MH55	NO	-	Clear	Clear	-	-	
2000	10B015	EASEMENT/CHARLES RIVER ROAD	WEST ROXBURY	21	COW ISLAND POND/CHARLES RIVER	>72Hrs.	MH6	NO	-	Clear	Clear	-	-	
2000	11B123	EASEMENT/EAST OF BAKER ST EXT.	WEST ROXBURY	72	BROOK FARM BROOK/CHARLES RIVER	>72Hrs.	MH45	NO	-	Clear	Clear	-	-	
2000	12B124	EASEMENT/LAGRANGE STREET	WEST ROXBURY	120	BROOK FARM BROOK	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	06C110	EASEMENT/PLEASANTDALE ST EXT	WEST ROXBURY	60	CHARLES RIVER	>72Hrs.	outfall	NO	-			-	-	On priority list for illegals investigation
2000	07C006	EASEMENT/VFW PARKWAY/BELLE AVE	WEST ROXBURY	126X126	CHARLES RIVER	>72Hrs.	outfall	NO	-	Clear	Cloudy	-	-	
2000	08C025/26	CENTRE LANE	WEST ROXBURY	two 24	NONE SHOWN	>72 Hrs	MH318	YES	0.50	Clear	Clear	0.00	0.00	Formerly 08C318 off Wedgemere Rd.- was extended to Centre Lane and conv
2000	24C031	PARSONS STREET	ALLSTON/BRIGHTON	60X60	CHARLES RIVER	>72Hrs.	outfall	NO	-	Clear		-	-	
2000	24D032	N OF BEACON ST, ABOUT 800' E OF PARSONS ST	ALLSTON/BRIGHTON	119X130	CHARLES RIVER	>72Hrs.	outfall			Clear	Clear	0.00	0.00	
2000	25D033	ABOUT 390' N OF INTERSECTION OF SOLDIERS FIELD RD & WESTERN AVE	ALLSTON/BRIGHTON	36	CHARLES RIVER	>72Hrs.	outfall	NO	-	Clear		-	-	
2000	01E024	EASEMENT/LAKESIDE	HYDE PARK	15	SPRAGUE POND/NEPONSET RIVER	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	03E185	NORTON ST	HYDE PARK	2-18	WETLANDS/NEPONSET RIVER	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	04E069	KNIGHT ST DAM	HYDE PARK	36	MOTHER BROOK	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	13E175	EASEMENT/VFW PKY	ROSLINDALE	108X86	BUSSEY BROOK	>24Hrs.	outfall	YES	0.10	Clear	Clear	0.00	0.00	
2000	25E037	EASEMENT/TELFORD ST	ALLSTON/BRIGHTON	66	CHARLES RIVER	>72Hrs.	outfall	NO	-	Clear		-	-	
2000	04F189	RESERVATION RD	HYDE PARK	36	MOTHER BROOK/NEPONSET RIVER	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	05F117	EASEMENT/TRUMAN HWY/WILLIAMS AVE	HYDE PARK	33	NEPONSET RIVER	>24Hrs.	outfall	YES	3.00	Clear	Clear	0.25	0.00	
2000	06G108	EASEMENT/WEST OF WOOD AVE EXT	HYDE PARK	69	NEPONSET RIVER	>72Hrs.	outfall	YES	1.00	Clear	Clear	0.25	1.00	On priority list for illegals investigation
2000	06G109	RIVER TER EXT, NEAR ROSA ST	HYDE PARK	48	NEPONSET RIVER	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	06G110	EASEMENT/WEST STREET EXT	HYDE PARK	30	NEPONSET RIVER	>72Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	19G043	HUNTINGTON AVE	ROXBURY/MISSION HILL	45X45	MUDDY RIVER	>24Hrs.	outfall	NO	-	Clear	Clear	-	-	
2000	20G161	EASEMENT/BROOKLINE AVE	ROXBURY/MISSION HILL	36	MUDDY RIVER	>24Hrs.	outfall	NO	-	Clear	Cloudy	-	-	
2000	23G132	EASEMENT/MASS TURNPIKE/WEST OF BU BRIDGE	ALLSTON/BRIGHTON	60	CHARLES RIVER	>72Hrs.	outfall	NO	-	Clear	Cloudy	-	-	
2000	24G035	SOLDIERS FIELD ROAD/BABCOCK ST	ALLSTON/BRIGHTON	90X84	CHARLES RIVER	>72Hrs.	outfall			Clear	Cloudy			
2000	06H107	EASEMENT/BELNEL RD	HYDE PARK	24	NEPONSET RIVER	>24Hrs.	outfall	NO	-	Clear	Clear	-	-	On priority list for illegals investigation
2001	09B049	EASEMENT/RIVERMOOR ST	WEST ROXBURY	30	COW ISLAND POND/CHARLES RIVER	>72 Hrs	outfall	NO	-	Rust	Cloudy	-	-	
2001	10B015	EASEMENT/CHARLES RIVER ROAD	WEST ROXBURY	21	COW ISLAND POND/CHARLES RIVER	>72 Hrs	outfall	NO	-	Brown	Cloudy	-	-	
2001	06C110	EASEMENT/PLEASANTDALE ST EXT	WEST ROXBURY	60	CHARLES RIVER	<72 Hrs	outfall	YES	1.00	Gray	Cloudy	0.00	0.20	On priority list for illegals investigation
2001	07C006	EASEMENT/VFW PARKWAY/BELLE AVE	WEST ROXBURY	126X126	CHARLES RIVER	>72 Hrs	outfall	NO	-	Brown	Cloudy	-	-	
2001	22C384	EASEMENT/LAKE SHORE RD	ALLSTON/BRIGHTON	36	CHANDLER POND	<72 Hrs.	outfall	YES	1.00	Clear	Clear	0.20	0.20	On priority list for illegals investigation
2001	24C031	PARSONS STREET	ALLSTON/BRIGHTON	60X60	CHARLES RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	06D187	EASEMENT/GROVE ST	WEST ROXBURY	36	BROOK GROVE ST CEMETERY	>72 Hrs	outfall	YES	1.00	Clear	Clear	1.00	0.40	On priority list for illegals investigation
2001	24D032	N OF BEACON ST, ABOUT 800' E OF PARSONS ST	ALLSTON/BRIGHTON	119X130	CHARLES RIVER	>72 Hrs	outfall	NO	-	Brown	Clear	0.25	0.20	
2001	24D150	SOLDIERS FIELD PLACE	ALLSTON/BRIGHTON	36	CHARLES RIVER	>72 Hrs	outfall	NO	-	N/A		-	-	
2001	25D033	ABOUT 390' N OF INTERSECTION OF SOLDIERS FIELD RD & WESTERN AVE	ALLSTON/BRIGHTON	36	CHARLES RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	01E024	EASEMENT/LAKESIDE	HYDE PARK	15	SPRAGUE POND/NEPONSET RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	04E069	KNIGHT ST DAM	HYDE PARK	36	MOTHER BROOK	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	13E175	EASEMENT/VFW PKY	ROSLINDALE	108X86	BUSSEY BROOK	>72 Hrs	outfall	YES	0.50	Clear	Clear	0.25	0.40	On priority list for illegals investigation
2001	13E176	EASEMENT/WELD ST	ROXBURY	15	NONE SHOWN	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	25E037	EASEMENT/TELFORD ST	ALLSTON/BRIGHTON	66	CHARLES RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	04F016	EASEMENT RIVER ST	HYDE PARK	30	MOTHER BROOK/NEPONSET RIVER	>72 Hrs	MH15	NO	-	Clear	Clear	-	-	
2001	04F189	RESERVATION RD	HYDE PARK	36	MOTHER BROOK/NEPONSET RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	05F117	EASEMENT/TRUMAN HWY/WILLIAMS AVE	HYDE PARK	33	NEPONSET RIVER	<72 Hrs.	MH232	YES	0.10	Clear	Clear			
2001	05F265	BEHIND L.E.MASON CO	HYDE PARK	15	MOTHER BROOK/NEPONSET RIVER	<72 Hrs.	outfall	NO	-	Clear	Clear	-	-	
2001	06H107	EASEMENT/BELNEL RD	HYDE PARK	24	NEPONSET RIVER	<72 Hrs.		YES	0.10	Clear	Clear	0.25	0.20	On priority list for illegals investigation
2001	30J006	EASEMENT/ALFORD ST	CHARLESTOWN	18	MYSTIC RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	30J019	ALFORD ST	CHARLESTOWN	15	MYSTIC RIVER	>72 Hrs	outfall	NO	-	Clear		-	-	
2001	30J030	EASEMENT/ARLINGTON AVE	CHARLESTOWN	42	MYSTIC RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	12M091	ERICSSON/WALNUT ST	NEPONSET/MATTAPAN	36	NEPONSET RIVER	>72 Hrs	outfall	YES	0.10	Brown	Cloudy	3.00	0.00	
2001	17M033	HARBOR POINT PARK (RELOCATED MT VERNON ST DRAIN)	DORCHESTER	72	OLD HARBOR	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	29N015	CHELSEA STREET	EAST BOSTON	42X44.5	CHELSEA RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2001	29N135	ADDISON ST	EAST BOSTON	30X30	CHELSEA RIVER	>72 Hrs	outfall	NO	-	Clear	Clear	-	-	
2002	08B066	EASEMENT/VFW PARKWAY	WEST ROXBURY	18	CHARLES RIVER	>72 Hrs.	OUTFALL	NO	-	-	-	-	-	
2002	08B122	EASEMENT/NORTH OF SPRING ST.	WEST ROXBURY	30	CHARLES RIVER	>72 Hrs	OUTFALL	YES	3.00	CLEAR	CLEAR	0.25	0	
2002	09E243	BLUE LEDGE TR/EASEMENT	WEST ROXBURY	30	UNNAMED STREAM	>72 Hrs.	outfall	YES	1.00	clear	clear	0.25	0.10	On priority list for illegals investigation
2002	15F288	ARNOLD ARBORETUM/MURRAY CIRCLE	JAMAICA PLAIN	54	GOLDSMITH BROOK	>72 Hrs.	outfall	YES	4.00	clear	clear	0.25	0.00	
2002	15F307	ARNOLD ARBORETUM 100' E OF ARBORWAY & ST JOSEPH ST	JAMAICA PLAIN	36X36	GOLDSMITH BROOK	>72 Hrs.	outfall	YES	2.00	clear	clear	0.75	0.00	
2002	07H285	BLUE HILL AVE	NEPONSET/MATTAPAN	106X63	NEPONSET RIVER	>72 Hrs.	MH 7H433	YES	3.00	clear/yellow	cloudy	>3	2.00	On priority list for illegals investigation
2002	07H105	EASEMENT/EDGEWATER/S RIVER ST	NEPONSET/MATTAPAN	102X72	NEPONSET RIVER	>72 Hrs.	outfall	YES	3.00	clear	clear	0.25	0.50	On priority list for illegals investigation
2002	12H092	AMERICAN LEGION HIGHWAY	WEST ROXBURY	24	CANTERBURY BROOK	>72 Hrs.	outfall	YES	3.00	clear	clear	0.00	0.00	
2002	08J103	EASEMENT/CENTRAL AVE BRIDGE	DORCHESTER	30	NEPONSET RIVER	>72 Hrs.	outfall	YES	2.00	clear	clear	0.50	0.00	

Table 2 - 1
Major Stormwater Outfalls
Field Screening Results 2000-2004

YEAR SCREENED	OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	RECEIVING WATER	LAST RAIN	INSP./SAMPLE LOCATION	FLOW	VELOCITY (feet per second)	COLOR	CLARITY	SURFAC-TANTS (MG/L)	AMMONIA (MG/L)	COMMENTS/NOTES
2002	08J49	DESMOND RD	DORCHESTER	18	NEPONSET RIVER	>72 Hrs.	outfall	NO	-	-	-	-	-	On priority list for illegals investigation
2002	08J50	DESMOND RD	DORCHESTER	24	NEPONSET RIVER	>72 Hrs.	outfall	YES	3.00	clear	clear	0.25	0.00	On priority list for illegals investigation
2002	21K069	125' NORTH OF W.FOURTH STREET (RELOCATED BY CA/T)	BOSTON PROPER	48	FORT POINT CHANNEL	>72 Hrs.	outfall	NO	-	-	-	-	-	
2002	26K050	BEVERLY STREET NEAR WARREN BRIDGE	BOSTON PROPER	36	CHARLES RIVER	>72 Hrs.	outfall	YES	3.00	clear	clear	3.00	0.00	FORMER CSO
2002	26K099	CHELSEA ST EXT (JOINER ST)	CHARLESTOWN	84	CHARLES RIVER	>72 Hrs.	MH377	YES	<1	Brown	Cloudy	1.00	1.00	On priority list for illegals investigation
2002	28K010	OLD LANDING WAY EXT	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL	>72 Hrs.	outfall	YES	3.00	clear	clear	3.00	0.00	
2002	28K061	EASEMENT/MEDFORD ST	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL	>72 Hrs.	MH66	YES	1.00	clear	clear	0.25	0.10	On priority list for illegals investigation
2002	28K386	EASEMENT/TERMINAL ST	CHARLESTOWN	30	LITTLE MYSTIC CHANNEL	>72 Hrs.	outfall	NO	-	-	-	-	-	
2002	09L095	GRANITE AVENUE	DORCHESTER	36X48	NEPONSET RIVER	>72 Hrs.	outfall	NO	-	-	-	-	-	FORMER CSO
2002	10L094	EASEMENT/GALLIVAN BLVD	DORCHESTER	74X93	NEPONSET RIVER VIA DAVENPORT BROOK	>72 Hrs.	outfall	YES	0.50	clear	clear	1.00	1.00	On priority list for illegals investigation
2002	10L096	HILLTOP & LEXONDALE STS	DORCHESTER	36	NEPONSET RIVER	>72 Hrs.	MH not on plan	YES	<1	clear	clear	1.25	0.00	
2004	14C009	EASEMENT/WESTGATE RD	WEST ROXBURY	36	UNNAMED WETLANDS	>72	outfall	YES	1.00	yellow	clear	0.25	7.5	receiving water is stagnant w/dark brown clear appearance
2004	13D077/078	WEST ROXBURY PKY/VFW PKY	WEST ROXBURY	2-60	BUSSEY BROOK	>72	outfall	YES	0.20	clear	clear	0.10	0.10	MONITORED FOR RES. SWM
2004	01F031	EASEMENT/MILLSTONE RD	HYDE PARK	48X24	NEPONSET RIVER	>72	MH1F022	NO						
2004	02F120	EASEMENT/WOLCOTT CT/HYDE PARK AVE EXT	HYDE PARK	54	NEPONSET RIVER	>72	outfall	YES	3.00	yellow	clear	2.00	0.40	
2004	04F119	EASEMENT/HYDE PARK AVE/RESERVATION RD	HYDE PARK	24	NEPONSET RIVER	<72	MH3F021	YES	0.50	clear	Clear	0.25	1.00	cannot locate SDO119, DMH048 and 047 have standing water
2004	04F204	TRUMAN HWY/CHITTICK ST	HYDE PARK	36	NEPONSET RIVER	>72	outfall	YES	3.00	clear	opaque			visible signs of toilet paper in OF pipe; no sample collected
2004	05F117	EASEMENT/TRUMAN HWY/WILLIAMS AVE	HYDE PARK	33	NEPONSET RIVER	>72	outfall	YES	2.00	clear	clear	0.25	0.20	
2004	05F253	EASEMENT/BUSINESS ST, NEAR BUSINESS TER	HYDE PARK	48X24	MOTHER BROOK/NEPONSET RIVER	>72	Unumbered MH	YES	0.30	clear	clear	0.10	0.20	
2004	14F181	CENTRE STREET EXT (ARNOLD ARBORETUM)	ROSLINDALE	38X86	GOLDSMITH BROOK	>72	MH	YES	0.20	clear	clear	0.25	0.10	CNL OF. COULD HAVE BEEN RELOCATED PURSUANT TO 2002-CONTRA
2004	26F038	HARVARD ST EXT	ALLSTON/BRIGHTON	36	CHARLES RIVER	<72	MH25F077	YES	0.20	clear	clear	0.50	0.30	cannot locate SDO038, standing water in downstream mhs
2004	05G112	EASEMENT/RR ROW/WATER ST EXT	HYDE PARK	30	NEPONSET RIVER	>72		NO	-	-	-	-	-	
2004	06G108	EASEMENT/WEST OF WOOD AVE EXT	HYDE PARK	69	NEPONSET RIVER	>72Hrs.	outfall	YES	0.30	clear	clear	0.25	0.25	
2004	06G109	RIVER TER EXT, NEAR ROSA ST	HYDE PARK	48	NEPONSET RIVER	>72	outfall	YES	0.30	clear	opaque	2.00	20.00	(ammonia appx. 2Xhighest color(10)
2004	06G110	EASEMENT/WEST STREET EXT	HYDE PARK	30	NEPONSET RIVER	>72	MH6G046	YES	0.50	clear	clear	0.10	0.00	stading water at downstream mh 110
2004	06G166	ABOUT 30' FROM GUARDRAIL NORTHERLY SIDE OF TRUMAN HWY NEAR MILTON LINE	HYDE PARK	36X36	NEPONSET RIVER	>72	outfall	YES	1.50	yellow	opaque	0.10	0.20	
2004	06H107	EASEMENT/BELNEL RD	HYDE PARK	24	NEPONSET RIVER	>72	outfall	NO	-	-	-	-	-	
2004	07H285	BLUE HILL AVE	NEPONSET/MATTAPAN	106X63	NEPONSET RIVER	<72	outfall	YES	3.00	yellow	clear	0.25	3.00	On priority list for illegals investigation
2004	07H105	EASEMENT/EDGEWATER/S RIVER ST	NEPONSET/MATTAPAN	102X72	NEPONSET RIVER	<72	outfall	YES	2.00	clear	cloudy	0.50	2.00	On priority list for illegals investigation
2004	23H042	DEERFIELD ST	BOSTON PROPER	116X120	CHARLES RIVER	<72	23HSC300	YES	0.02	green	cloudy	0.50	1.00	Couldn't locate SDO23H042; downstream mhs have standing water
2004	27J001	EASEMENT/INTERSTATE 93	CHARLESTOWN	72	MILLERS RIVER	<72	2J020	YES	0.02	clear	clear	0.50	1.50	OF submerged at high and low tide
2004	27J096	EASEMENT/INTERSTATE 93	CHARLESTOWN	54	MILLERS RIVER	<72	27J090	YES	0.50	clear	clear	0.50	2.00	OF is submerged w/coffer dam in front. Cannot locate upstream mh until N. of
2004	29J212	EASEMENT/MEDFORD ST(ALSO OF017)	CHARLESTOWN	72	MYSTIC RIVER	>72	MH29J2008	YES	0.20	clear	cloudy	0.50	2.00	
2004	09K100	EASEMENT/MELLISH RD	DORCHESTER	34X24	NEPONSET RIVER	<72	outfall	NO	-	black	cloudy	-	-	this outfall appears different from map. Outlet is facing south east not soutwes
2004	12L092	PINE NECK CREEK/TENEAN ST WEST OF LAWLEY	DORCHESTER	72	NEPONSET RIVER	<72	unmapped Drain s	YES	0.20	clear	clear	1.50	1.00	standing water in downstream mhs
2004	16L097	EASEMENT/OFF SAVIN HILL AVE	DORCHESTER	24	PATTEN'S COVE	>72	outfall	YES	1.50	clear	clear	2.50	0.00	
2004	23L075	CONGRESS ST BRIDGE	SOUTH BOSTON	54	FORT POINT CHANNEL	>72 Hrs.	MH 23L080	YES	3.00	clear	clear	3.00	0.20	
2004	23L164	CONGRESS ST BRIDGE	BOSTON PROPER	48	FORT POINT CHANNEL	>72 Hrs.	outfall	YES	0.50	clear	clear	3.00	0.20	
2004	23L195	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR	>72	outfall	YES	1.00	clear	clear	1.50	0.00	
2004	23L196	NEW NORTHERN AVE BRIDGE	SOUTH BOSTON	36	FORT POINT CHANNEL	>72	unmapped mh	YES	0.20	clear	clear	1.00	0.00	
2004	23L202	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR	>72	outfall	YES	2.00	clear	clear	1.50	0.00	
2004	24L233	ROWE'S WHARF/ATLANTIC AVE	BOSTON PROPER	42	BOSTON HARBOR	>72	upstream MH	YES	0.50	clear	clear	1.50	0.00	
2004	25L058	CHRISTOPHER COLUMBUS PARK-WATERFRONT	BOSTON PROPER	84	BOSTON INNER HARBOR	>72	MH 25L049	YES	2.00	clear	clear	2.00	0.30	
2004	26L055	NEAR BATTERY WHARF	BOSTON PROPER	24X24	BOSTON INNER HARBOR	>72	MH26L025	NO	0.00	-	-	-	-	
2004	26L070	HANOVER ST EXT	BOSTON PROPER	36	BOSTON INNER HARBOR	>72	MH26L008	YES	1.00	clear	clear	1.00	0.10	
2004	27L020	PIER 4 EASEMENT - NAVY YARD	CHARLESTOWN	2-20&24	BOSTON INNER HARBOR	>72	MH27L548	YES	1.00	clear	clear	0.50	0.20	heavy soapy discharge obs. @DMH470 from the northeast
2004	28L074/075/076	16TH ST/4TH AVE - NAVY YARD	CHARLESTOWN	3-30	LITTLE MYSTIC CHANNEL	>72	MH28L031	YES	0.10	clear	clear	2.00	0.00	cannot access Ofs. Cannot locate MH033. sample taken at 60" influent of mh (
2004	11M093	NEPONSET AVE AT NW END OF NEPONSET AVE BRIDGE	DORCHESTER	48	NEPONSET RIVER	>72	outfall	YES	2.00	clear	clear	1.50	1.50	
2004	21M005	SUMMER STREET	SOUTH BOSTON	18	RESERVED CHANNEL	>72	outfall	NO	0.00	-	-	-	-	
2004	29M041	EASEMENT/CONDOR ST	EAST BOSTON	36X30	CHELSEA RIVER	>72	MH29M131	YES	1.00	yellow	cloudy	1.00	20.00	Could not located outfall
2004	28N207	MOORE ST	EAST BOSTON	54X57	BOSTON HARBOR	<72 hrs	MH28N233	YES	0.30	clear	clear	1.00	0.10	
2004	29O001	BENNINGTON ST (CONSTITUTION BEACH)	EAST BOSTON	66	BOSTON HARBOR NEAR CONSTITUTION BEACH	<72	Pipe junction 247/	YES	0.50	clear	cloudy	1.50	0.00	no access to OF; sluggish stagnant flow in mh161
	02F093	EASEMENT/SIERRA RD	HYDE PARK	15	NEPONSET RIVER									Manholes surcharged; outfall pipe blocked/collapsed
	24G034	SOLDIERS FIELD ROAD, S OF CAMBRDIGE ST	ALLSTON/BRIGHTON	36	CHARLES RIVER									being investigated under cleaner charles 2005; no need to screen
	11I577	HARVARD ST	NEPONSET/MATTAPAN	102X102	CANTERBURY BROOK									being investigated under Stony Brook Illegals-no need to screen
	27J044	PRISON POINT BRIDGE	CHARLESTOWN	15	MILLERS RIVER									couldn't locate OF or upstream MH; BWSC crews also trying to locate
	21L077	CLAFLIN ST EXT/E. ST	SOUTH BOSTON	24	RESERVED CHANNEL									eliminated due to construction?

identified during field screening. Figure 2 – 1 is a flow chart illustrating the Phase 1 ranking methodology.

First, the water body or sensitive location receiving discharge from each outfall was identified. The types of water bodies and sensitive locations are listed below in the order (from highest to lowest) of the priority assigned:

A. Outfalls discharging to a beach;
B. Outfalls discharging to the lower Charles River;
C. Outfalls discharging to inland freshwater streams and brooks;
D. Outfalls discharging to an Area of Critical Environmental Concern;
E. Outfalls discharging to the Neponset and Upper Charles Rivers; and
F. Outfalls discharging to tidal waters (Chelsea Creek, Mystic River, Millers River, Boston Harbor).

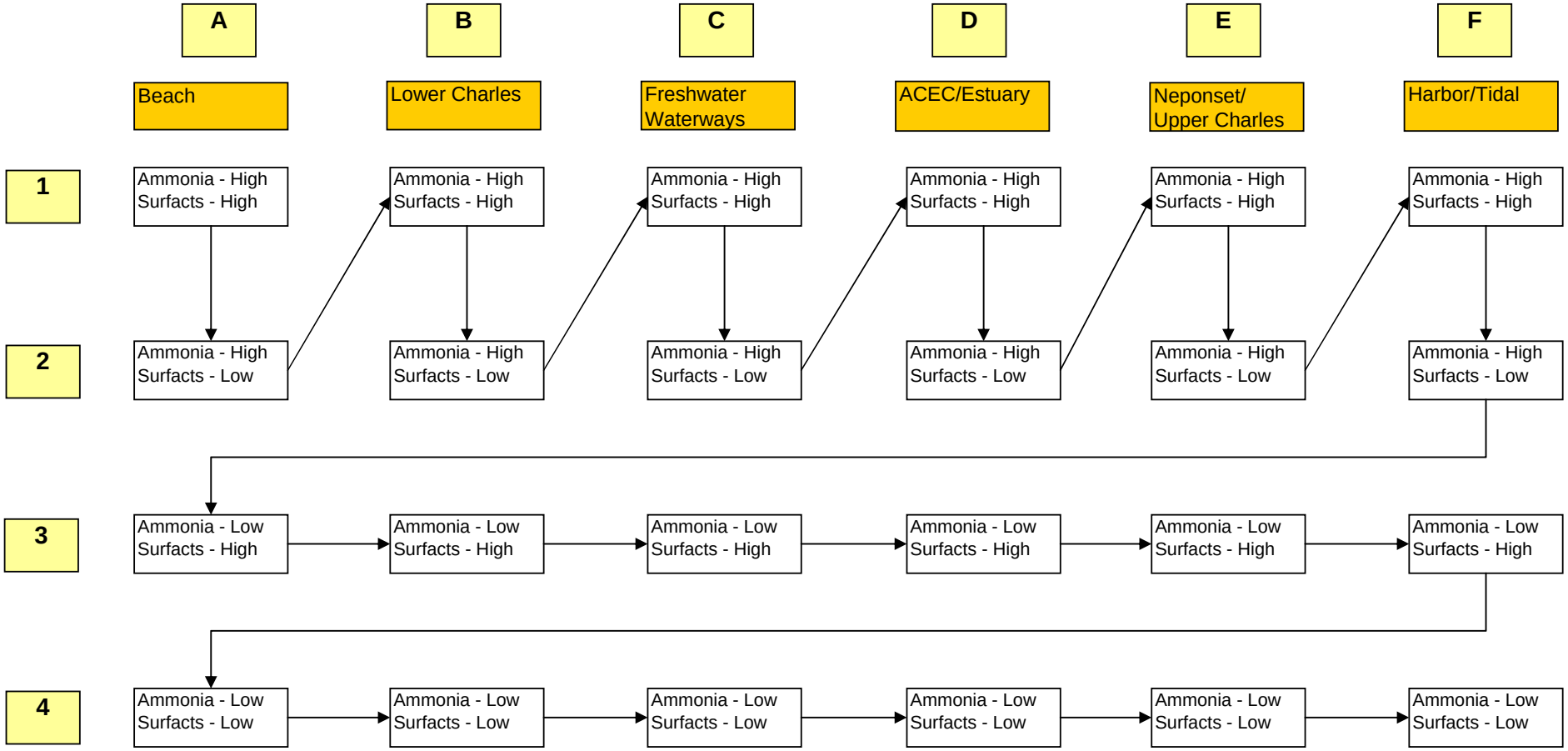
The results of the field screening of the outfalls were similarly categorized based on whether or not they were indicative of contamination from illegal connections as follows:

1. Locations with visible contamination or dry-weather flow containing measurable levels of both ammonia and surfactants;
2. Locations with dry-weather flow containing measurable levels of ammonia without measurable surfactants;
3. Locations with dry-weather flow containing measurable levels of surfactants without measurable ammonia;
4. Locations with dry weather flow present, but no visible contamination or measurable ammonia or surfactants;
5. Locations with no dry weather flow and no visual evidence of contamination; and
6. Locations where the outfall was not located or not inspected.

Other factors were taken into account in determining which areas would be investigated under Phase 1. These factors included the following:

- Requests or orders from EPA/DEP to include certain areas
- Outside collaborative cooperation or requests
- Proximity to area(s) already under investigation
- Results of sampling or screening test kits
- Ease of investigation
- Number of buildings
- Land use
- Cost

FIGURE 2-1
Drainage Area Ranking Methodology



The ranking methodology was applied to the 1999-2004 outfall screening data and investigations were started in some of the higher ranking areas. Subsequently, upon further review of the 1999-2004 outfall screening data, it became evident that there were inconsistencies in the methods used by the Commission's crews versus the consultant while collecting the data. To ensure consistency in the screening data, it was decided to have the Phase 1 consultant re-screen the major outfalls previously screened by the Commission's crews.

After the outfalls were re-screened, the ranking methodology was again applied to the outfall screening data, and the drainage areas were re-ranked. This caused several areas to fall in ranking while others moved up. To ensure efficient use of resources and avoid fragmentation in the program approach, investigations were continued in the areas where they had already begun. Ultimately, the ranking and selection of the drainage areas that resulted was determined based on a combination of factors, including level of contamination at the outfall. The final prioritization list determined during Phase 1 is shown as Table 2 – 2.

Other things to note about the Commission's Phase 1 prioritization methodology are as follows:

- Investigations were initiated in four areas tributary to the Neponset River, although they fell relatively low on the priority list. The areas were 6G108, 7H105, 7H285 and 10L094. This is due to the fact that when weather conditions permit, dry weather inspections can proceed very quickly in larger areas with many smaller tributaries. The Commission authorized investigation in these areas because they are very large and allowed for efficient use of resources.

- Investigations in two areas tributary to the Neponset River were initiated, due to a Notice of Noncompliance (NON) issued by DEP on October 11, 2007. The areas were 5G116 and 6G110. Area 5G116 is tributary to a non-major outfall.

- Investigations were started in several non-major drainage areas due to evidence of contamination reported by parties other than the Commission, or due to their close proximity to drainage areas otherwise selected for investigation. They were 29P044, 28P001, 19G043, 19G194. Drainage area 29M049 was investigated using the Commission's Field Engineering crews.

- Several areas investigated are not outfalls; rather they are drain manholes serving subareas of larger drainage areas. Manholes 21D319, 20D055, 21E086 and 21E064 connect to drains owned by Brookline, and ultimately to the Muddy River. These areas were included in the investigations due to the finding of contamination downstream in the Brookline drains by Brookline.

Table 2 - 2
Illegal Connection Investigation Prioritization List

OUTFALL NUMBER	MAJOR/NON-MAJOR OF	LOCATION	SIZE (INCHES)	RECEIVING WATER	FLOW	VELOCITY (fps)	SURFACTANTS (MG/L)	AMMONIA (MG/L)	OUTFALL LOCATION	COMMENTS/NOTES
29O001	MAJOR	BENNINGTON ST (CONSTITUTION BEACH)	66	BOSTON HARBOR NEAR CONSTITUTION BEACH	YES	0.50	1.50	*	A	Outfall is submerged
29P044	NON MAJOR	SHAWSHEEN ST.	12	BOSTON HARBOR	YES		*	*	A	
28P001	NON MAJOR	NANCIA ST.	12	BOSTON HARBOR	YES		*	*	A	
12L092	MAJOR	PINE NECK CREEK/TENEAN ST WEST OF LAWLEY (TENEAN BEACH)	72	NEPONSET RIVER	YES	0.20	1.50	1.00	A	Investigation performed under the Pine Neck Creek Water Quality Assessment
23G132	MAJOR	EASEMENT/TURNPIKE/WEST OF BU BRIDGE (BOSTON U.)	60	CHARLES RIVER	YES	-	0.50	0.10	B	
24D032	MAJOR	N OF BEACON, ABOUT 800' E OF PARSONS ST (FANEUIL BROOK)	119X130	CHARLES RIVER	YES	0.00	0.25	0.20	B	
25E037	MAJOR	EASEMENT/TELFORD ST (TELFORD ST)	66	CHARLES RIVER	YES	-	0.25	0.20	B	
04F204	MAJOR	TRUMAN HWY/CHITTICK ST	36	NEPONSET RIVER	YES	3.00	*	*	C	
21D319	NOT AN OUTFALL	VILLAGE BROOK/KILSYTH		VILLAGE BROOK/MUDDY RIVER	YES		*	*	C	This is a manhole not an outfall. Contamination detected at connection to Brookline
18G233	NON MAJOR	DAISY FIELD/OFF JAMAICAWAY	18	MUDDY RIVER/LEVERETT POND	N/A		*	*	C	Added per EPA request
20D055	NOT AN OUTFALL	VILLAGE BROOK/STRATHMORE		VILLAGE BROOK/MUDDY RIVER	YES		*	*	C	This is a manhole not an outfall. Contamination detected at connection to Brookline
21E064	NOT AN OUTFALL	TANNERY BROOK DISCHARGE TO BROOKLINE		TANNERY BROOK/MUDDY RIVER	YES		*	*	C	This is a manhole not an outfall. Contamination detected at connection to Brookline
19G194	NON MAJOR	SOUTH HUNTINGTON	45x45	MUDDY RIVER	YES		*	*	C	
20G161	MAJOR	EASEMENT/BROOKLINE AVE	36	MUDDY RIVER	YES	-	0.25	10.00	C	
21E086	NOT AN OUTFALL	VILLAGE BROOK/CUMMINGS		VILLAGE BROOK/MUDDY RIVER	YES		*	*	C	This is a manhole not an outfall. Contamination detected at connection to Brookline
11I577	MAJOR	HARVARD ST (NORTH DORCHESTER TRIBUTARY AREA)	102X102	CANTERBURY BROOK	YES		0.10	2.00	C	Investigation began under Stony Brook Illegal Connection Investigation
05F117	MAJOR	EASEMENT/TRUMAN HWY/WILLIAMS AVE	33	NEPONSET RIVER	YES	2.00	0.25	0.20	C	
19G043	MAJOR	HUNTINGTON AVE	45X45	MUDDY RIVER	YES	-	0.25	0.20	C	
29M041 (29M049)	MAJOR	EASEMENT/CONDOR ST	36X30	CHELSEA RIVER	YES	1.00	1.00	10.00 +	F	29M049 no longer exists; flows are diverted to 29M049; 29M049 was investigated by BWSC Field Services in 2008
06G110	MAJOR	EASEMENT/WEST STREET EXT	30	NEPONSET RIVER	YES	0.50	0.10	0.00	E	Investigated by BWSC Eng. Field Services AND under CWI2
24G035	MAJOR	SOLDIERS FIELD ROAD/BABCOCK ST	90X84	CHARLES RIVER					B	
5G116	NON MAJOR	FAIRMOUNT AVE BRDGE (SOUTH BANK)	24	NEPONSET RIVER					E	Investigated by BWSC Eng. Field Services
02F120	MAJOR	EASEMENT/WOLCOTT CT/HYDE PARK AVE EXT	54	NEPONSET RIVER	YES	3.00	2.00	0.40	C	
24G034	MAJOR	SOLDIERS FIELD ROAD, S OF CAMBRIDGE ST	36	CHARLES RIVER	YES		3.00	0.60	B	Investigated by BWSC Engineering Field Services
06D187	MAJOR	EASEMENT/GROVE ST	36	BROOK GROVE ST CEMETERY	YES	1.00	0.25	1.00	C	
12B124	MAJOR	EASEMENT/LAGRANGE STREET	120	BROOK FARM BROOK	YES	-	0.25	0.8	C	
13G030	NOT AN OUTFALL	MBTA COMMUTER PARKING LOT (PHILBRICK TRIBUTARY AREA)		CHARLES RIVER	YES		0.09	0.31	C	Invest. began under Stony Brook Illegal Invest. Not an Outfall
10L094	MAJOR	EASEMENT/GALLIVAN BLVD	74X93	NEPONSET RIVER VIA DAVENPORT BROOK	NO	0.50			D	At time of screening flow at outfall was being diverted for construction; However, sewage observed upstream by construction contractor
12H092	MAJOR	AMERICAN LEGION HIGHWAY	24	CANTERBURY BROOK	YES	3.00	0.00	0.30	C	Investigation began under Stony Brook Illegal Connection Investigation
07H285	MAJOR	BLUE HILL AVE	106X63	NEPONSET RIVER	YES	3.00	0.25	3.00	E	
06G108	MAJOR	EASEMENT/WEST OF WOOD AVE EXT	69	NEPONSET RIVER	YES	0.30	0.25	2.50	E	
07H105	MAJOR	EASEMENT/EDGEWATER/S RIVER ST	102X72	NEPONSET RIVER	YES	2.00	0.50	2.00	E	
07C006	MAJOR	EASEMENT/VFW PARKWAY/BELLE AVE	126X126	CHARLES RIVER	YES	-	0.25	0.8	E	
29N135	MAJOR	ADDISON ST	30X30	CHELSEA RIVER	YES	-	0.25	0.30	F	
26F038	MAJOR	HARVARD ST EXT	36	CHARLES RIVER	YES	0.20	0.50	0.30	B	
24D150	MAJOR	SOLDIERS FIELD PLACE	36	CHARLES RIVER	YES	-	0.25	0.30	B	
14C009	MAJOR	EASEMENT/WESTGATE RD	36	UNNAMED WETLANDS	YES	1.00	0.25	7.5	C	
04F119	MAJOR	EASEMENT/HYDE PARK AVE/RESERVATION RD	24	NEPONSET RIVER	YES	0.50	0.25	1.00	C	
22C384	MAJOR	EASEMENT/LAKE SHORE RD	36	CHANDLER POND	YES	1.00	0.25	0.80	C	
23H042	MAJOR	DEERFIELD ST	116X120	CHARLES RIVER	YES	0.02	0.50	1.00	B	
26G001	MAJOR	SOLDIERS FIELD RD. EAST OF HARVARD UNIVERSITY	36	CHARLES RIVER	YES		0.25	1.00	B	
04F189	MAJOR	RESERVATION RD	36	MOTHER BROOK/NEPONSET RIVER	YES	-	3 +	10.00	C	No flow observed during screening in 2000

Table 2 - 2
Illegal Connection Investigation Prioritization List

OUTFALL NUMBER	MAJOR/NON-MAJOR OF	LOCATION	SIZE (INCHES)	RECEIVING WATER	FLOW	VELOCITY (fps)	SURFACTANTS (MG/L)	AMMONIA (MG/L)	OUTFALL LOCATION	COMMENTS/NOTES
11B123	MAJOR	EASEMENT/EAST OF BAKER ST EXT.	72	BROOK FARM BROOK/CHARLES RIVER	YES	-	2.5	10	C	No flow observed during screening in 2000
15F288	MAJOR	ARNOLD ARBORETUM/MURRAY CIRCLE	54	GOLDSMITH BROOK	YES	4.00	0.25	0.40	C	
14F181	NOT AN OUTFALL	CENTRE STREET EXT (ARNOLD ARBORETUM)	38X86	GOLDSMITH BROOK	YES	0.20	0.25	0.10	C	This is NOT an outfall. It is an inlet
05F253	MAJOR	EASEMENT/BUSINESS ST, NEAR BUSINESS TER	48X24	MOTHER BROOK/NEPONSET RIVER	YES	0.30	0.10	0.20	C	
15F307	NOT AN OUTFALL	ARNOLD ARBORETUM 100' E OF ARBORWAY & ST JOSEPH ST	36X36	GOLDSMITH BROOK	YES	2.00	0.12	0.10	C	This is not an outfall. It is an inlet
13D077/078	MAJOR	WEST ROXBURY PKY/VFW PKY	60(2)	BUSSEY BROOK	YES	0.20	0.10	0.10	C	Monitored for Resid. SWM
06D097	MAJOR	EASEMENT/EDGEMERE RD.	51	NONE SHOWN	YES		0.00	1.00	C	
09E243	MAJOR	BLUE LEDGE TR/EASEMENT	30	UNNAMED STREAM	YES	1.00	0.00	0.30	C	
08C025/26	MAJOR	CENTRE LANE	24(2)	NONE SHOWN	YES		0.00	0.30	C	
10L096	MAJOR	HILLTOP & LEXONDALE STS	36	NEPONSET RIVER	YES	<1	1.00	3.00	D	
11M093	MAJOR	NEPONSET AVE AT NW END OF NEPONSET AVE BRIDGE	48	NEPONSET RIVER	YES	2.00	1.50	1.50	D	
06G109	MAJOR	RIVER TER EXT, NEAR ROSA ST	48	NEPONSET RIVER	YES	0.30	2.00	10.00 +	E	Subsequent to screening a sewer overflow was identified and blocked
08J103	MAJOR	EASEMENT/CENTRAL AVE BRIDGE	30	NEPONSET RIVER	YES	2.00	0.25	0.80	E	
08B122	MAJOR	EASEMENT/NORTH OF SPRING ST.	30	CHARLES RIVER	YES	3.00	0.5	0.10	E	
06H107	NON MAJOR	EASEMENT/BELNEL RD	24	NEPONSET RIVER	YES	0.10	0.25	0.20	E	
08J050	MAJOR	DESMOND RD	24	NEPONSET RIVER	YES	3.00	0.25	0.10	E	
06G166	MAJOR	ABOUT 30' FROM GUARDRAIL NORTH SIDE OF TRUMAN HWY NEAR MILTON LINE	36X36	NEPONSET RIVER	YES	1.50	0.10	0.20	E	
23L075	MAJOR	CONGRESS ST BRIDGE	54	FORT POINT CHANNEL	YES	3.00	3.00	0.20	F	
23L164	MAJOR	CONGRESS ST BRIDGE	48	FORT POINT CHANNEL	YES	0.50	3.00	0.20	F	
29J212	MAJOR	EASEMENT/MEDFORD ST	72	MYSTIC RIVER	YES	0.20	0.50	2.00	F	
27J096	MAJOR	EASEMENT/INTERSTATE 93	54	MILLERS RIVER	YES	0.50	0.50	2.00	F	
25L058	MAJOR	CHRISTOPHER COLUMBUS PARK-WATERFRONT	84	BOSTON INNER HARBOR	YES	2.00	2.00	0.30	F	
27J001	MAJOR	EASEMENT/INTERSTATE 93	72	MILLERS RIVER	YES	0.02	0.10	1.50	F	OF submerged at high and low tide
30J030	MAJOR	EASEMENT/ARLINGTON AVE	42	MYSTIC RIVER	YES	-	0.75	0.60	F	
28N207	MAJOR	MOORE ST	54X57	BOSTON HARBOR	YES	0.30	1.00	0.10	F	
26L070	MAJOR	HANOVER ST EXT	36	BOSTON INNER HARBOR	YES	1.00	1.00	0.10	F	
27L020	MAJOR	PIER 4 EASEMENT - NAVY YARD	20&24(2)	BOSTON INNER HARBOR	YES	1.00	0.50	0.20	F	
28K061	MAJOR	EASEMENT/MEDFORD ST	42	LITTLE MYSTIC CHANNEL	YES	1.00	0.25	0.20	F	
26K099	MAJOR	CHELSEA ST EXT (JOINER ST)	84	CHARLES RIVER	YES	<1	0.00	2.00	F	
12M091	MAJOR	ERICSSON/WALNUT ST	36	NEPONSET RIVER	YES	0.10	1.50	0.00	D	
28K010	MAJOR	OLD LANDING WAY EXT	42	LITTLE MYSTIC CHANNEL	YES	3.00	3.00	0.00	F	
12L296	MAJOR	CONLEY STREET	42	DORCHESTER BAY	YES		3.00	0.00	F	
16L097	MAJOR	EASEMENT/OFF SAVIN HILL AVE	24	PATTEN'S COVE	YES	1.50	2.50	0.00	F	
28L074/075/076	MAJOR	16TH ST/4TH AVE - NAVY YARD	30(3)	LITTLE MYSTIC CHANNEL	YES	0.10	2.00	0.00	F	Could not access outfall or MH033. Sample taken at 60" influent of MH031.
22L580	MAJOR	NECCO STREET	54	RESERVED CHANNEL	Yes		2.00	0.00	F	
17M033	MAJOR	HARBOR POINT PARK (RELOCATED MT VERNON ST DRAIN)	72	OLD HARBOR	YES	-	1.50	0.00	F	
24L233	MAJOR	ROWE'S WHARF/ATLANTIC AVE	42	BOSTON HARBOR	YES	0.50	1.50	0.00	F	
23L195	MAJOR	NORTHERN AVE	36	BOSTON INNER HARBOR	YES	1.00	1.50	0.00	F	
23L202	MAJOR	NORTHERN AVE	36	BOSTON INNER HARBOR	YES	2.00	1.50	0.00	F	
26K050	MAJOR	BEVERLY STREET NEAR WARREN BRIDGE	36	CHARLES RIVER	YES	-	1.50	0.00	F	Former CSO; Outfall no longer exists; MH \035 screened
21M010	MAJOR	SUMMER STREET	24	RESERVED CHANNEL	Yes		1.50	0.00	F	
23L196	MAJOR	NEW NORTHERN AVE BRIDGE	36	FORT POINT CHANNEL	YES	0.20	1.00	0.00	F	

Table 2 - 2
Illegal Connection Investigation Prioritization List

OUTFALL NUMBER	MAJOR/NON-MAJOR OF	LOCATION	SIZE (INCHES)	RECEIVING WATER	FLOW	VELOCITY (fps)	SURFACTANTS (MG/L)	AMMONIA (MG/L)	OUTFALL LOCATION	COMMENTS/NOTES
29N015	MAJOR	CHELSEA STREET	42X44.5	CHELSEA RIVER	YES	-	1.00	0.00	F	
03E185	MAJOR	NORTON ST	2-18	WETLANDS/NEPONSET RIVER	YES	-			C	
04E069	MAJOR	KNIGHT ST DAM	36	MOTHER BROOK	YES	-			C	
24C031	MAJOR	PARSONS STREET	60X60	CHARLES RIVER	NO	-			B	
25D033	MAJOR	ABOUT 390' N OF INTERSECTION OF SOLDIERS FIELD RD & WESTERN AVE	36	CHARLES RIVER	NO	-			B	
01F031	MAJOR	EASEMENT/MILLSTONE RD	48X24	NEPONSET RIVER	NO	-			C	
10B015	MAJOR	EASEMENT/CHARLES RIVER ROAD	21	COW ISLAND POND/CHARLES RIVER	NO	-			C	
01E024	MAJOR	EASEMENT/LAKESIDE	15	SPRAGUE POND/NEPONSET RIVER	NO	-			C	
04F016	MAJOR	EASEMENT RIVER ST	30	MOTHER BROOK/NEPONSET RIVER	NO	-			C	
13E175	MAJOR	EASEMENT/VFW PKY	108X86	BUSSEY BROOK	NO	0.50			C	
13E176	NON MAJOR	EASEMENT/WELD ST	15	NONE SHOWN	NO	-			C	
09B049	MAJOR	EASEMENT/RIVERMORE ST.	30	COW ISLAND POND/CHARLES RIVER	NO				C	
09L095	MAJOR	GRANITE AVENUE	36X48	NEPONSET RIVER	NO	-			D	
09K100	MAJOR	EASEMENT/MELLISH RD	34X24	NEPONSET RIVER	NO	-			D	
06C110	MAJOR	EASEMENT/PLEASANTDALE ST EXT	60	CHARLES RIVER	NO	1.00			E	
08J049	MAJOR	DESMOND RD	18	NEPONSET RIVER	NO	-			E	
05G112	MAJOR	EASEMENT/RR ROW/WATER ST EXT	30	NEPONSET RIVER	NO	-			E	
5G115	MAJOR	FAIRMOUNT AVE BRDGE (NORTH BANK)	24	NEPONSET RIVER	NO				E	
21K069	MAJOR	125' NORTH OF W.FOURTH STREET (RELOCATED BY CA/T)	48	FORT POINT CHANNEL	NO	-			F	
30J006	MAJOR	EASEMENT/ALFORD ST	18	MYSTIC RIVER	NO	-			F	
21M005	MAJOR	SUMMER STREET	18	RESERVED CHANNEL	NO	-			F	
26L055	MAJOR	NEAR BATTERY WHARF	24X24	BOSTON INNER HARBOR	NO	-			F	
28K386	MAJOR	EASEMENT/TERMINAL ST	30	LITTLE MYSTIC CHANNEL	NO	-			F	
30J019	MAJOR	ALFORD ST	15	MYSTIC RIVER	NO	-			F	
02F093	NON MAJOR	EASEMENT/SIERRA RD	15	NEPONSET RIVER					C	
27J044	OF ELIMINATED	PRISON POINT BRIDGE	15	MILLERS RIVER					F	
*		Evidence of contamination from sources other than ammonia and surfactant screening								
		Drainage Areas with 50 buildings or less; Investigated by dye testing all buildings								
		Drainage areas investigated under Phase 1								
Location Codes:			A. Outfalls discharging to a beach; B. Outfalls discharging to the lower Charles River; C. Outfalls discharging to inland freshwater streams and brooks; D. Outfalls discharging to an ACEC; E. Outfalls discharging to the Neponset and Upper Charles Rivers; and F. Outfalls discharging to tidal waters (Chelsea Creek, Mystic River., Millers River., Boston Harbor).							

– With the exception of four areas, the Phase 1 priority spreadsheet does not list areas investigated under the Stony Brook Illegal Connection Investigation (SBI) Program. These areas were being, or were already investigated under that program. The four areas on the priority list that that were carried over to the CWI program from the Stony Brook program include the 24D032 and 11I577 areas, which discharge to distinct outfalls, and the Philbrick and American Legion sub-drainage areas, which discharge to manholes 13G030 and 12H092 in the Stony Brook Conduit tributary area. The Philbrick and American Legion sub-drainage areas were included in the CWI program since work in the areas was not complete at the close of the SBI Program.

b. Phase 2 Drainage Area Investigation Prioritization Methodology

When areas are newly opened to investigation using the manhole inspection/sandbag method, manhole inspections can proceed relatively quickly, as long as dry weather persists. However, once the initial dry weather inspections are completed, progress slows, as dye tests are scheduled and completed, contamination sources are pinpointed then eliminated, and illegal connections are confirmed as eliminated.

While Phase 1 investigations were being advanced, the new funds provided under Phase 2 enabled expansion of investigations into 56 new drainage areas in March, 2009. These areas, which included drainage areas tributary to non-major outfalls, were selected based on a number of considerations, including:

- Proximity to beaches, such as those located in East Boston and Dorchester
- Ranked high on the priority list developed during Phase 1, and not yet under investigation
- Proximity relative to areas already under investigation
- Location in the upper portion of the riverway, such was the case with the drainage areas located in the upper part of the Neponset and Charles Rivers

By August, 2009, field crews had completed the initial phase of dry weather manhole inspection work in the new areas. With dry weather continuing through the fall of 2009, the Commission authorized initiation of dry weather inspections in the recently separated 13L090 (Victory Rd.) drainage area in September, followed initiation of dry weather inspections in an additional 20 areas in November.

As of the end of 2009, investigations in 40 drainage areas had been completed, some of which had been started under Phase 2. Investigations in 87 areas were on-going. Table 2 - 3 lists of all the Commission's drainage areas and their investigation status.

Table 2-3
Drainage Area Investigation Status
2009

OUTFALL NUMBER	CATEGORY	LOCATION	INVESTIGATION STATUS	NEIGHBORHOOD	RECEIVING WATER	START DATE	COMPLETE DATE	
29O001	MAJOR	BENNINGTON ST (CONSTITUTION BEACH)	CWI1	EAST BOSTON	BOSTON HARBOR NEAR CONSTITUTION BEACH	August, 2005		
29P044	NON-MAJOR	SHAWSHEEN ST	CWI1	EAST BOSTON	BOSTON HARBOR	August, 2005		
28P001	NON-MAJOR	EASEMENT/NANCIA STREET	CWI1	EAST BOSTON	BOSTON HARBOR NEAR CONSTITUTION BEACH	August, 2005		
28N156	NON-MAJOR	COLERIDGE ST EXT	CWI2-RELEASED 3/09	EAST BOSTON	BOSTON HARBOR	March, 2009		
28N207	MAJOR	MOORE ST	CWI2-RELEASED 3/09	EAST BOSTON	BOSTON HARBOR	March, 2009		NEAR BEACH
28O025	NON-MAJOR	COLERIDGE/WADSWORTH ST. EXT	CWI2-RELEASED 3/09	EAST BOSTON	BOSTON HARBOR	March, 2009		STARTED UNDER SBI
13L090	MAJOR	VICTORY RD. 200 FT SOUTH	CWI2-RELEASED 9/09	DORCHESTER	DORCHESTER BAY	September, 2009		STARTED UNDER CWI
15L088	MAJOR	FREEPORT WAY EXTENDED		DORCHESTER	DORCHESTER BAY			STARTED UNDER CWI2 3/09
15L089	MAJOR	FOX POINT RD EXTENDED		DORCHESTER	DORCHESTER BAY			STARED UNDER CWI2 11/09
12L296	MAJOR	CONLEY STREET	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER/DORCHESTER BAY	November, 2009		COMPLETED
16L097	NON-MAJOR	EASEMENT/OFF SAVIN HILL AVE		DORCHESTER	PATTEN'S COVE			
12M091	MAJOR	ERICSSON/WALNUT ST	CWI2-RELEASED 11/09	NEPONSET/MATTAPAN	NEPONSET RIVER	November, 2009		
17M033	MAJOR	HARBOR POINT PARK (RELOCATED MT VERNON ST DRAIN)		DORCHESTER	OLD HARBOR			
11I577	MAJOR	HARVARD ST (NORTH DORCHESTER)	SBI	NEPONSET/MATTAPAN	CANTERBURY BROOK	July, 2000		
12H085*	NON-MAJOR	MORTON STREET	SBI	ROSLINDALE	CANTERBURY BROOK	SBI		
12H087*	NON-MAJOR	MORTON STREET	SBI	ROSLINDALE	CANTERBURY BROOK	SBI		
24D032	MAJOR	N OF BEACON ST, ABOUT 800' E OF PARSONS ST	SBI	ALLSTON/BRIGHTON	CHARLES RIVER	September, 2002		
25E037	MAJOR	EASEMENT/TELFORD ST	CWI1	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2005		
24G035	MAJOR	SOLDIERS FIELD ROAD/BABCOCK ST	CWI1	ALLSTON/BRIGHTON	CHARLES RIVER	September, 2006		
20DMH055	MANHOLE	VILLAGE BROOK/STRATHMORE (TO BROOKLINE DRAINS)	CWI1	ALLSTON/BRIGHTON	VILLAGE BROOK/STRATHMORE	May, 2005		
21DMH319	MANHOLE	VILLAGE BROOK/KILSYTH (TO BROOKLINE DRAINS)	CWI1	ALLSTON/BRIGHTON	VILLAGE BROOK/KILSYTH	May, 2005		
21EMH064	MANHOLE	TANNERY BROOK (TO BROOKLINE DRAINS)	CWI1	ALLSTON/BRIGHTON	TANNERY BROOK	June, 2005		
18G233	NON-MAJOR	X-COUNTRY BTN WILLOW POND RD AND JAMAICAWAY	CWI1	JAMAICA PLAIN	MUDDY RIVER-LEVERETT POND	March, 2006		
19G043	MAJOR	HUNTINGTON AVE	CWI1	ROXBURY/MISSION HILL	MUDDY RIVER	September, 2006		
19G194	MAJOR	SOUTH HUNTINGTON AVE	CWI1	ROXBURY/MISSION HILL	MUDDY RIVER	September, 2006		
20G161	MAJOR	EASEMENT/BROOKLINE AVE	CWI1	ROXBURY/MISSION HILL	MUDDY RIVER	October, 2006		
12B124	MAJOR	EASEMENT/LAGRANGE STREET	CWI1	WEST ROXBURY	BROOK FARM BROOK	April, 2006		
06D187	MAJOR	EASEMENT/GROVE ST	CWI1	WEST ROXBURY	BROOK GROVE ST CEMETERY	October, 2005		
07C006	MAJOR	EASEMENT/VFW PARKWAY/BELLE AVE	CWI1	WEST ROXBURY	CHARLES RIVER	October, 2005		
04F204	MAJOR	TRUMAN HWY/CHITTICK ST	CWI1	HYDE PARK	NEPONSET RIVER	October, 2007		
06G108	MAJOR	EASEMENT/WEST OF WOOD AVE EXT	CWI1	HYDE PARK	NEPONSET RIVER	July, 2006		
07H105	MAJOR	EASEMENT/EDGEWATER/S RIVER ST	CWI1	NEPONSET/MATTAPAN	NEPONSET RIVER	July, 2006		
07H285	MAJOR	BLUE HILL AVE	CWI1	NEPONSET/MATTAPAN	NEPONSET RIVER	April, 2006		
02F120	MAJOR	EASEMENT/WOLCOTT CT/HYDE PARK AVE EXT	CWI1	HYDE PARK	NEPONSET RIVER	September, 2005		
10L094	MAJOR	EASEMENT/GALLIVAN BLVD (DAVENPORT)	CWI1	DORCHESTER	NEPONSET RIVER VIA DAVENPORT BROOK	April, 2006		
14C009	MAJOR	EASEMENT/WESTGATE RD	CWI1	WEST ROXBURY	UNNAMED WETLANDS	January, 2006		
29P015	NON-MAJOR	EASEMENT/BARNES AVE	CWI2-RELEASED 3/09	EAST BOSTON	BELLE ISLE INLET	March, 2009		
11B123	MAJOR	EASEMENT/EAST OF BAKER ST EXT.	CWI2-RELEASED 3/09	WEST ROXBURY	BROOK FARM BROOK/CHARLES RIVER	March, 2009		
25D040	MAJOR	ABOUT 390' N OF INTERSECTION OF SOLDIERS FIELD RD & WESTER	CWI2-RELEASED 3/09	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009		
26G001	MAJOR	SOLDIERS FIELD ROAD/EAST OF HARVARD UNIVERSITY	CWI2-RELEASED 3/09	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009		
03E186	NON-MAJOR	RIVER STREET	CWI2-RELEASED 3/09	HYDE PARK	MILL POND/MOTHER BROOK	March, 2009		
04E069	MAJOR	KNIGHT ST DAM	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK	March, 2009		
04F016	NON-MAJOR	EASEMENT RIVER ST	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK/NEPONSET RIVER	March, 2009		
04F189	MAJOR	RESERVATION RD	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK/NEPONSET RIVER	March, 2009		
05F244	NON-MAJOR	HYDE PARK AVE BRIDGE	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK/NEPONSET RIVER	March, 2009		
05F245	NON-MAJOR	HYDE PARK AVE	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK/NEPONSET RIVER	March, 2009		
05F253	MAJOR	EASEMENT/BUSINESS ST, NEAR BUSINESS TER	CWI2-RELEASED 3/09	HYDE PARK	MOTHER BROOK/NEPONSET RIVER	March, 2009		

Table 2-3
Drainage Area Investigation Status
2009

OUTFALL NUMBER	CATEGORY	LOCATION	INVESTIGATION STATUS	NEIGHBORHOOD	RECEIVING WATER	START DATE	COMPLETE DATE	
01F031	MAJOR	EASEMENT/MILLSTONE RD	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
02F093	NON-MAJOR	EASEMENT/SIERRA RD	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
04F118	NON-MAJOR	MASON STREET EXT.	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
04F203	NON-MAJOR	GLENWOOD AVE	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
05F254	NON-MAJOR	DANA AVENUE	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
05G112	MAJOR	EASEMENT/RR ROW/WATER ST EXT	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
05G115	MAJOR	FAIRMOUNT AVE BRIDGE (NORTH BANK)	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		NEAR BEACH
05G116A	NON-MAJOR	WARREN AVENUE	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		STARTED UNDER SBI
06G109	MAJOR	RIVER TER EXT, NEAR ROSA ST	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		STARTED UNDER CWI
06G110	MAJOR	EASEMENT/WEST STREET EXT	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		STARTED UNDER CWI2 3/09
06G111	NON-MAJOR	EASEMENT/VOSE ST EXT., TRUMAN HWY	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		STARED UNDER CWI2 11/09
06G165	NON-MAJOR	TRUMAN HWT/METROPOLITAN AVE	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		COMPLETED
06G166	MAJOR	ABOUT 30' FROM GUARDRAIL NORTH SIDE OF TRUMAN HWY NEAR MILTON	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
06H106	NON-MAJOR	OSCEOLA STREET	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
06H107	NON-MAJOR	EASEMENT/BELNEL RD	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
07H287	NON-MAJOR	RIVER STREET/EDGEWATER DRIVE	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
07H346	NON-MAJOR	EDGEWATER DRIVE/HOLMFIELD AVE	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
07H347	NON-MAJOR	EDGEWATER DRIVE/BURMAH ROAD	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
07H348	NON-MAJOR	EDGEWATER DRIVE/TOPALIAN STREET	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I153	NON-MAJOR	DUXBURY ROAD	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I154	NON-MAJOR	EASEMENT/RIVER ST/GLADESIDE AVE	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I155	NON-MAJOR	EASEMENT/RIVER ST/MAMELON CIR	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I156	NON-MAJOR	EASEMENT/RIVER ST/MAMELON CIR	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I158	NON-MAJOR	EASEMENT/RIVER ST/FREMONT ST	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I207	NON-MAJOR	MEADOWBANK AVE EXT	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
08I209	NON-MAJOR	MEADOWBANK AVE EXT	CWI2-RELEASED 3/09	NEPONSET/MATTAPAN	NEPONSET RIVER	March, 2009		
02F085	NON-MAJOR	LAWTON STREET	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER RESERVATION	March, 2009		
03F162	MAJOR	FARADAY STREET-DCR DRAIN	CWI2-RELEASED 3/09	HYDE PARK	NEPONSET RIVER	March, 2009		
01E024	MAJOR	EASEMENT/LAKESIDE	CWI2-RELEASED 3/09	HYDE PARK	SPRAGUE POND/NEPONSET RIVER	March, 2009		
02E086	NON-MAJOR	WEST MILTON STREET	CWI2-RELEASED 3/09	HYDE PARK	UNAMED WETLANDS	March, 2009		
30P062	NON-MAJOR	PALERMO AVE EXT	CWI2-RELEASED 3/09	EAST BOSTON	WETLANDS	March, 2009		
31O004	NON-MAJOR	EASEMENT/WALDEMAR AVE	CWI2-RELEASED 3/09	EAST BOSTON	CHELSEA RIVER	March, 2009		
03E185	MAJOR	NORTON ST	CWI2-RELEASED 3/09	HYDE PARK	WETLANDS/NEPONSET RIVER	March, 2009		
13E174	NON-MAJOR	EASEMENT/VFW PARKWAY	CWI2-RELEASED 11/09	ROSLINDALE	BUSSEY BROOK	November, 2009		
13E175	MAJOR	EASEMENT/VFW PKY	CWI2-RELEASED 11/09	ROSLINDALE	BUSSEY BROOK	November, 2009		
13D077/078	MAJOR	WEST ROXBURY PKY/VFW PKY	CWI2-RELEASED 11/09	WEST ROXBURY	BUSSEY BROOK	November, 2009		
13F011	NON-MAJOR	ALLANDALE STREET	CWI2-RELEASED 11/09	ROSLINDALE	BUSSEY BROOK	November, 2009		
08B122	MAJOR	EASEMENT/NORTH OF SPRING ST.	CWI2-RELEASED 11/09	WEST ROXBURY	CHARLES RIVER	November, 2009		
08B126	NON-MAJOR	SPRING STREET EXTENDED	CWI2-RELEASED 11/09	WEST ROXBURY	CHARLES RIVER	November, 2009		
10B015	MAJOR	EASEMENT/CHARLES RIVER ROAD	CWI2-RELEASED 11/09	WEST ROXBURY	COW ISLAND POND/CHARLES RIVER	November, 2009		
08J041	NON-MAJOR	RIVER STREET	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
08J103	NON-MAJOR	EASEMENT/CENTRAL AVE BRIDGE	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
08J49/50	MAJOR	DESMOND RD	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
08J102	NON-MAJOR	ADAMS STREET	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
08K049	NON-MAJOR	BEARSE AVENUE	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
09K016	NON-MAJOR	EASEMENT/BEARSE AVE EXT	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
09K100	MAJOR	EASEMENT/MELLISH RD	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		

Table 2-3
Drainage Area Investigation Status
2009

OUTFALL NUMBER	CATEGORY	LOCATION	INVESTIGATION STATUS	NEIGHBORHOOD	RECEIVING WATER	START DATE	COMPLETE DATE	
09K101	NON-MAJOR	EASEMENT/HUNTOON ST EXT	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
09L095	MAJOR	GRANITE AVENUE	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
10L096	MAJOR	HILLTOP & LEXONDALE STS	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
11M093	MAJOR	NEPONSET AVE AT NW END OF NEPONSET AVE BRIDGE	CWI2-RELEASED 11/09	DORCHESTER	NEPONSET RIVER	November, 2009		
12B010	NON-MAJOR	BAKER STREET		WEST ROXBURY	BROOK FARM BROOK			
12B014	NON-MAJOR	BAKER STREET		WEST ROXBURY	BROOK FARM BROOK			
12B031	NON-MAJOR	EASEMENT/BAKER STREET		WEST ROXBURY	BROOK FARM BROOK			
12B033	NON-MAJOR	EASEMENT/BAKER STREET		WEST ROXBURY	BROOK FARM BROOK			
13F093	NON-MAJOR	WALTER STREET		ROSLINDALE	BUSSEY BROOK			NEAR BEACH
13F095	NON-MAJOR	EASEMENT/BUSSEY STREET		ROSLINDALE	BUSSEY BROOK			STARTED UNDER SBI
06C110	MAJOR	EASEMENT/PLEASANTDALE ST EXT		WEST ROXBURY	CHARLES RIVER			STARTED UNDER CWI
06D057	NON-MAJOR	CEDAR CREST CIRCLE		WEST ROXBURY	CHARLES RIVER			STARTED UNDER CWI2 3/09
23H040	NON-MAJOR	RALEIGH STREET EXT		BOSTON PROPER	CHARLES RIVER			STARED UNDER CWI2 11/09
23H042	MAJOR	DEERFIELD ST		BOSTON PROPER	CHARLES RIVER			COMPLETED
26J052	NON-MAJOR	MONSIGNOR O'BRIEN HWY		BOSTON PROPER	CHARLES RIVER			
26J055	NON-MAJOR	LEVERETT CIRCLE		BOSTON PROPER	CHARLES RIVER			
09B049	MAJOR	EASEMENT/RIVERMOOR ST		WEST ROXBURY	COW ISLAND POND/CHARLES RIVER			
15F288	MAJOR	ARNOLD ARBORETUM/MURRAY CIRCLE		JAMAICA PLAIN	GOLDSMITH BROOK			
17F012	NON-MAJOR	FRANCIS PARKMAN DRIVE		JAMAICA PLAIN	JAMAICA POND			
03E207	NON-MAJOR	RIVER STREET		HYDE PARK	MILL POND/MOTHER BROOK			
19G199	NON-MAJOR	JAMAICA WAY		ROXBURY/MISSION HILL	MUDDY RIVER			
20G163	NON-MAJOR	EASEMENT/RIVERWAY		ROXBURY/MISSION HILL	MUDDY RIVER			
21H039	NON-MAJOR	FENWAY		BOSTON PROPER	MUDDY RIVER			
21H047	NON-MAJOR	PALACE ROAD EXT		BOSTON PROPER	MUDDY RIVER			
21H048	NON-MAJOR	EASEMENT/FENWAY/EVANS WAY		BOSTON PROPER	MUDDY RIVER			
21H201	NON-MAJOR	PALACE ROAD EXT		BOSTON PROPER	MUDDY RIVER			
13E176	NON-MAJOR	EASEMENT/WELD ST		ROSLINDALE	NONE SHOWN			
06D097	MAJOR	EASEMENT/EDGEMERE ROAD		WEST ROXBURY	NONE SHOWN			
08C025/26	MAJOR	WEDGEMERE ROAD		WEST ROXBURY	NONE SHOWN			
13B011	NON-MAJOR	LAGRANGE STREET		WEST ROXBURY	UNNAMED STREAM			
24L233	MAJOR	ROWE'S WHARF/ATLANTIC AVE		BOSTON PROPER	BOSTON HARBOR			
23L015	NON-MAJOR	NORTHERN AVE		SOUTH BOSTON	BOSTON INNER HARBOR			
23L016	NON-MAJOR	NORTHERN AVE		SOUTH BOSTON	BOSTON INNER HARBOR			
23L202	MAJOR	NORTHERN AVE		SOUTH BOSTON	BOSTON INNER HARBOR			
24L057	NON-MAJOR	STATE STREET EXT		BOSTON PROPER	BOSTON INNER HARBOR			
25L058	MAJOR	CHRISTOPHER COLUMBUS PARK-WATERFRONT		BOSTON PROPER	BOSTON INNER HARBOR			
25L144	NON-MAJOR	CLARK STREET		BOSTON PROPER	BOSTON INNER HARBOR			
26L055	MAJOR	NEAR BATTERY WHARF		BOSTON PROPER	BOSTON INNER HARBOR			
26L070	MAJOR	HANOVER ST EXT		BOSTON PROPER	BOSTON INNER HARBOR			
26L084	MAJOR	LEWIS STREET		EAST BOSTON	BOSTON INNER HARBOR			
27L020	MAJOR	PIER 4 EASEMENT - NAVY YARD		CHARLESTOWN	BOSTON INNER HARBOR			
26K035	MAJOR	BEVERLY STREET NEAR WARREN BRIDGE		BOSTON PROPER	CHARLES RIVER			
26K052	NON-MAJOR	COMMERCIAL STREET AT CHARTER ST.		BOSTON PROPER	CHARLES RIVER			
26K099	MAJOR	CHELSEA ST EXT (JOINER ST)		CHARLESTOWN	CHARLES RIVER			
26K245	NON-MAJOR	EASEMENT		CHARLESTOWN	CHARLES RIVER			
29M049	MAJOR	CONDOR STREET		EAST BOSTON	CHELSEA RIVER			
29N015	MAJOR	CHELSEA STREET		EAST BOSTON	CHELSEA RIVER			

Table 2-3
Drainage Area Investigation Status
2009

OUTFALL NUMBER	CATEGORY	LOCATION	INVESTIGATION STATUS	NEIGHBORHOOD	RECEIVING WATER	START DATE	COMPLETE DATE	
16L122	MAJOR	MORRISSEY BLVD		DORCHESTER	DORCHESTER BAY			
21K069	MAJOR	125' NORTH OF W.FOURTH STREET (RELOCATED BY CA/T)		BOSTON PROPER	FORT POINT CHANNEL			
22L580	MAJOR	NECCO STREET EXTENDED		SOUTH BOSTON	FORT POINT CHANNEL			
23L074	NON-MAJOR	SUMMER ST BRIDGE		SOUTH BOSTON	FORT POINT CHANNEL			
23L075	MAJOR	CONGRESS ST BRIDGE		SOUTH BOSTON	FORT POINT CHANNEL			
23L164	MAJOR	CONGRESS ST BRIDGE		BOSTON PROPER	FORT POINT CHANNEL			
23L196	MAJOR	NEW NORTHERN AVE BRIDGE		SOUTH BOSTON	FORT POINT CHANNEL			
28K010	MAJOR	OLD LANDING WAY EXT		CHARLESTOWN	LITTLE MYSTIC CHANNEL			
28K061	MAJOR	EASEMENT/MEDFORD ST		CHARLESTOWN	LITTLE MYSTIC CHANNEL			
28K386	MAJOR	EASEMENT/TERMINAL ST		CHARLESTOWN	LITTLE MYSTIC CHANNEL			NEAR BEACH
28L073	NON-MAJOR	EASEMENT/4TH ST - NAVY YARD		CHARLESTOWN	LITTLE MYSTIC CHANNEL			STARTED UNDER SBI
28L074/075/076	MAJOR	16TH ST/4TH AVE - NAVY YARD		CHARLESTOWN	LITTLE MYSTIC CHANNEL			STARTED UNDER CWI
28L077	NON-MAJOR	EASEMENT/4TH ST - NAVY YARD		CHARLESTOWN	LITTLE MYSTIC CHANNEL			STARTED UNDER CWI2 3/09
27J001	MAJOR	EASEMENT/INTERSTATE 93		CHARLESTOWN	MILLERS RIVER			STARED UNDER CWI2 11/09
27J044	MAJOR	PRISON POINT BRIDGE		CHARLESTOWN	MILLERS RIVER			COMPLETED
27J096	MAJOR	EASEMENT/INTERSTATE 93		CHARLESTOWN	MILLERS RIVER			
29J029	NON-MAJOR	ALFORD STREET/RYAN PLGD. EXT		CHARLESTOWN	MYSTIC RIVER			
29J129	MAJOR	ALFORD STREET		CHARLESTOWN	MYSTIC RIVER			
29J212	MAJOR	EASEMENT/MEDFORD ST(NEXT TO CSO 017)		CHARLESTOWN	MYSTIC RIVER			
30J006	MAJOR	EASEMENT/ALFORD ST		CHARLESTOWN	MYSTIC RIVER			
30J019	MAJOR	ALFORD ST		CHARLESTOWN	MYSTIC RIVER			
30J030	MAJOR	EASEMENT/ARLINGTON AVE		CHARLESTOWN	MYSTIC RIVER			
20L081	NON-MAJOR	EAST FIRST STREET		SOUTH BOSTON	RESERVED CHANNEL			
20L083	NON-MAJOR	EAST FIRST STREET		SOUTH BOSTON	RESERVED CHANNEL			
21M010	MAJOR	D STREET EXTENDED		SOUTH BOSTON	RESERVED CHANNEL			
21M050	MAJOR	SUMMER STREET		SOUTH BOSTON	RESERVED CHANNEL			
12L092	MAJOR	PINE NECK CREEK/TENEAN ST WEST OF LAWLEY	BWSC/COMPLETE	DORCHESTER	NEPONSET RIVER	August, 2005	August, 2007	
04E064*	NON-MAJOR	ALVARDO AVE/RIVER ST BRIDGE	SBI-COMPLETE	HYDE PARK	MILL POND/MOTHER BROOK	SBI	SBI	
09E229*	NON-MAJOR	GRANDVIEW STREET	SBI-COMPLETE	WEST ROXBURY	NONE SHOWN	SBI	SBI	
12F418*	NON-MAJOR	EASEMENT/WALTER STREET (renumbered from 12F322)	SBI-COMPLETE	ROSLINDALE	NONE SHOWN	SBI	SBI	
05E180*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	HYDE PARK	NONE SHOWN/CHARLES RIVER	SBI	SBI	
05E181*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	HYDE PARK	NONE SHOWN/CHARLES RIVER	SBI	SBI	
05E184*	NON-MAJOR	TURTLE POND PARKWAY	SBI-COMPLETE	HYDE PARK	UNAMED WETLANDS	SBI	SBI	
08E031*	NON-MAJOR	TURTLE POND PARKWAY	SBI-COMPLETE	WEST ROXBURY	TURTLE POND	SBI	SBI	
08E033*	NON-MAJOR	TURTLE POND PARKWAY	SBI-COMPLETE	WEST ROXBURY	TURTLE POND	SBI	SBI	
08E035*	NON-MAJOR	WASHINGTON STREET	SBI-COMPLETE	WEST ROXBURY	TURTLE POND	SBI	SBI	
05E183*	NON-MAJOR	GEORGETOWN PLACE/DEDHAM ST	SBI-COMPLETE	HYDE PARK	UNNAMED STREAM	SBI	SBI	
09E243*	NON-MAJOR	BLUE LEDGE TR/EASEMENT	SBI-COMPLETE	WEST ROXBURY	UNNAMED STREAM	SBI	SBI	
05E182*	NON-MAJOR	DEDHAM STREET	SBI-COMPLETE	HYDE PARK	UNNAMED STREAM/CHARLES RIVER	SBI	SBI	
06F233*	NON-MAJOR	MOUNT ASH ROAD	SBI-COMPLETE	HYDE PARK	WETLAND - STONY BROOK RESERVATION	SBI	SBI	
06D083*	NON-MAJOR	MARGETTA DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
06D084*	NON-MAJOR	EASEMENT/MARGARETTA DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
06D085*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
06D086*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
06D091*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
06D184*	NON-MAJOR	GEORGETOWN DRIVE	SBI-COMPLETE	WEST ROXBURY	WETLANDS/CHARLES RIVER	SBI	SBI	
11G318*	NON-MAJOR	CULVERT UNDER WALK HILL STREET	SBI-COMPLETE	ROSLINDALE	CANTERBURY BROOK	SBI	SBI	

Table 2-3
Drainage Area Investigation Status
2009

OUTFALL NUMBER	CATEGORY	LOCATION	INVESTIGATION STATUS	NEIGHBORHOOD	RECEIVING WATER	START DATE	COMPLETE DATE	
11G319*	NON-MAJOR	CULVERT UNDER WALK HILL STREET	SBI-COMPLETE	ROSLINDALE	CANTERBURY BROOK	SBI	SBI	
12F305*	NON-MAJOR	EASEMENT/ARBOROUGH ROAD	SBI-COMPLETE	ROSLINDALE	UNAMED WETLANDS	SBI	SBI	
12H092	MAJOR	AMERICAN LEGION HIGHWAY	SBI-COMPLETE	MATTAPAN	CANTERBURY BROOK	SBI	SBI	
23L195	MAJOR	NORTHERN AVE	CWI1-COMPLETE	SOUTH BOSTON	BOSTON INNER HARBOR	May, 2006	May, 2006	
22C384	MAJOR	EASEMENT/LAKE SHORE RD	CWI1-COMPLETE	ALLSTON/BRIGHTON	CHANDLER POND	January, 2006	August, 2007	
23G132	MAJOR	EASEMENT/MASS TURNPIKE/WEST OF BU BRIDGE	CWI1-COMPLETE	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2005	November, 2006	
24D150	MAJOR	SOLDIERS FIELD PLACE	CWI1-COMPLETE	ALLSTON/BRIGHTON	CHARLES RIVER	January, 2006	April, 2006	
26F038	MAJOR	HARVARD ST EXT	CWI1-COMPLETE	ALLSTON/BRIGHTON	CHARLES RIVER	January, 2006	November, 2007	
29N135	MAJOR	ADDISON ST	CWI1-COMPLETE	EAST BOSTON	CHELSEA RIVER	January, 2007	August, 2007	
04F119	MAJOR	EASEMENT/HYDE PARK AVE/RESERVATION RD	CWI1-COMPLETE	HYDE PARK	NEPONSET RIVER	January, 2006	September, 2008	
21EMH086	MANHOLE	VILLAGE BROOK/CUMMINGS (TO BROOKLINE DRAINS)	CWI1-COMPLETE	ALLSTON/BRIGHTON	VILLAGE BROOK/KILSYTH	May, 2005	October, 2006	NEAR BEACH
05F117	MAJOR	EASEMENT/TRUMAN HWY/WILLIAMS AVE	CWI1-COMPLETE	HYDE PARK	NEPONSET RIVER	October, 2007	November, 2009	STARTED UNDER SBI
05G116	NON-MAJOR	FAIRMOUNT AVE BRIDGE (SOUTH BANK)	CWI2-COMPLETE 2009	HYDE PARK	NEPONSET RIVER	March, 2009	October, 2009	STARTED UNDER CWI
24C174	NON-MAJOR	EASEMENT/NEWTON STREET	CWI2-COMPLETE 2009	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009	September, 2009	STARTED UNDER CWI2 3/09
24G034	MAJOR	SOLDIERS FIELD ROAD, S OF CAMBRIDGE ST	CWI2-COMPLETE 2009	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009	December, 2009	STARED UNDER CWI2 11/09
30P107	NON-MAJOR	WALDEMAR AVENUE	CWI2-COMPLETE 2009	EAST BOSTON	WETLANDS	March, 2009	December, 2009	COMPLETED
21C212	NON-MAJOR	EASEMENT/LAKE SHORE ROAD	CWI2-COMPLETE 2009	ALLSTON/BRIGHTON	CHANDLER POND	March, 2009	December, 2009	
25G006	NON-MAJOR	FROM WESTERN AVE BRIDGE	CWI2-COMPLETE 2009	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009	December, 2009	
25G041	NON-MAJOR	SOLDIERS FIELD RD/NORTH OF WESTERN AVE BRIDGE	CWI2-COMPLETE 2009	ALLSTON/BRIGHTON	CHARLES RIVER	March, 2009	December, 2009	
31P084	NON-MAJOR	EASEMENT/BENNINGTON ST	CWI2-COMPLETE 2009	EAST BOSTON	BELLE ISLE INLET, REVERE	March, 2009	December, 2009	
03F159	NON-MAJOR	WAKEFIELD AVENUE-DCR DRAIN	CWI2-COMPLETE 2009	HYDE PARK	NEPONSET RIVER	March, 2009	December, 2009	

2.6 2010 OUTFALL SCREENING AND DRAINAGE AREA INVESTIGATION PROGRAM

a. Dry Weather Outfall Screening 2010

In the last several years, illegal connection investigations have been expanded into many new areas, and many illegal connections and other problems have been identified and corrected. To evaluate current conditions in the Commission's drainage system overall, in 2010, all of the Commission's outfalls, including the non-major outfalls, will be screened. Funding for this effort was included in the Phase 2 Citywide Illegal Connection Investigation Program contract. Initial inspections of the outfalls are expected to be completed in March/April, 2010, followed by field sampling in the spring/summer of 2010. The field screening is expected to be completed by September, 2010.

The methodology and sampling parameters will be similar to that used during the previous screening, and sampling for indicator bacteria will be included. Crews will also determine where new outfall identification signs are needed.

b. Drainage Area Investigation Program 2010

The Commission is currently advancing illegal connection investigations in all of the major drainage areas within Boston, including the upper and lower Charles River, Neponset, Mystic (Constitution Beach and Chelsea Creek), Dorchester Bay, Muddy River, Mother Brook, Canterbury Brook and Bussey Brook.

Figure 1-1 provided at the end of Section 1, is a map showing the locations of the Commission's outfalls and their tributary areas. The map also illustrates the current status of illegal connection investigations in each drainage area under the Citywide Phase 2 program. Table 2-3 discussed previously, is a tabular representation of all of the Commission's outfalls/drainage areas, including their size category (major vs. non major), and current investigation status.

The Phase 2 program is expected to continue over the next three year period. In 2010, the Phase 2 program will continue to utilize the top to bottom/sandbag approach, and employ "work around" methods if possible. Work around methods might include dye testing all of the buildings in a particular stretch of pipe in order to advance progress downstream of known contamination sources.

Although the Commission's "top to bottom" approach has been criticized by some as being too slow, the approach has proven highly effective in identifying illegal connections and other sanitary sources of contamination in storm drains. A review of the illegal connections identified by the Commission in the past indicates that many illegal connections found were "partial" connections, i.e. only a part of a building's plumbing, or only a single fixture, such as a washing machine, was connected to an internal drain pipe. The rest of the plumbing in the building was properly connected to the sewer

system. These types of illegal connections might have been missed through routine visual inspections of manholes, single dye tests of buildings, or video inspections of main pipes. The top to bottom approach is also very effective in very large drainage areas, where evidence of an illegal connection in the upper reaches of the area may not appear at the outfall until days, or even weeks later. In cases where more expedient or specialized investigations are warranted, the Commission's relies on its Field Engineering staff to investigate using quicker, more conventional methods.

In 2009, the Commission and its consultant began reviewing the progress of investigations in each of the Phase 1 drainage areas, to identify any impediments to progress, and to get them resolved. Review of all the Phase 1 drainage areas will be completed in early 2010.

The Commission has considered various methods for determining completeness of the investigations in each drainage area. Each method appears to have limitations. For example, relying on the number of buildings or manholes determined to be free of contamination could falsely represent completeness, since some areas of the city are more densely developed than others. In the next year, the Commission will continue to evaluate methods for determining completeness of investigations and will work on developing maps that illustrate where work has been completed, and where progress has been made.

In 2010, investigations in drainage areas that discharge in close proximity to beaches will continue to take first priority. (Investigations in drainage areas 15L088/089, 16L097 and 17M033 are expected to begin in 2011). To ensure efficient use of resources and avoid fragmentation in the program approach, investigations in areas started during SBI and Phase 1 will be given the next level of priority. It is already known for the most part where there is contamination in the Phase 1 areas, although the exact sources are still pinpointed or are still in process of being corrected. The next priority for investigations will be given to the areas opened for investigation under Phase 2.

2.7 CORRECTION OF ILLEGAL CONNECTIONS

a. Corrections under BWSC Contracts

The Commission's annual Capital Improvement Program includes funding for the elimination of illegal connections by a private contractor. Once an illegal connection is confirmed, information about the illegal connection, including maps and record plans of the sewer and drains in the street, are forwarded to the Commission's Construction Division for correction under the Commission's illegal connection repair contract. Barring any extenuating circumstances, such as those described below, corrections to direct illegal connections are usually completed within a three month period.

b. Corrections Required by Owners

In some cases, the owner of the property is responsible for correcting the illegal connection. For example, in some buildings only part of the plumbing (e.g. one bathroom or toilet) is properly connected to an internal building drain, while the rest of the plumbing fixtures in the building are properly connected to the building sewer. Another example is where an ejector pump is necessary, or the internal sewer lateral must be raised in order to make the necessary grade with the sewer in the street. These types of fixes can be expensive and beyond the owner's capability to pay. Therefore, the Commission offers some assistance to owners where the plumbing must be raised or an ejector pump installed. The Commission provides up to $7,500 to owners to make such corrections, but it is on a reimbursement basis only, and the owners must provide three or more quotes from plumbers willing to do the work. Many owners have reported difficulty in obtaining the necessary quotes from plumbers.

c. Corrections Requiring Engineering Designs

Illegal connection corrections that prove particularly challenging are those that require an engineering design to correct. If the correction involves reconfiguration of the sewer and/or the drain in the street, the Commission may take responsibility for the design and correction. But in other cases, where significant changes to internal plumbing or privately owned infrastructure are necessary, the owner must cover the cost of the design and construction of the correction. These types of corrections can be very complex and may require a long time to perform inspections and prepare designs. Also, permits from other agencies, such as the inspectional services department, may be required.

One example of a correction requiring an engineering design prepared by the owner was the Boston Fire Department Alarm Building at 59 the Fenway. The nearest sewer was located over 300 feet away, and the new sewer lateral had to cross over the Old Stony Brook Conduit in order to reach the sewer on Hemenway Street. The Alarm Building is relatively old and has a very complex infrastructure with a multitude of internal pipes and connections for both wastewater and stormwater.

2.8 2009 ILLEGAL CONNECTION REMEDIATION SUMMARY

In 2009, thirty-two (32) new illegal connections were identified, and forty-four (44) illegal connections were corrected. Twenty-six illegal connections remained uncorrected at the end of 2009. Between 1986, when the Commission's began illegal connection investigations, and the end of 2009, a total of 1,075 illegal connections have been corrected.

The Commission estimates the wastewater removed by elimination of an illegal connection based upon water use records for the property where the illegal connection was corrected. The water use bills are summarized for the previous year, and 90 percent of the water use is estimated to be discharged to the sewer system. The result is then

reported on a daily basis. If only a portion of the building contributed to the illegal connection, the figure is adjusted accordingly.

Due to the Commission's efforts in 2009, an estimated 8,594 gallons per day (gpd) of wastewater was removed from the storm drainage system and receiving waters. Of this amount, approximately 7,010 gpd was from residential and multi-family properties, while 1,584 gpd was from businesses or institutions. Between 1986 and the end of 2009, an estimated total of 567,217 gallons of wastewater per day have been removed from the storm drainage system and receiving waters as a result of the Commission's illegal connection remediation programs.

In 2009, the Commission spent approximately $212,000 to correct 27 illegal connections, for an average of $6,053 per correction. This cost does not include the cost of permits, inspection fees, pavement restoration or police details, and it does not include the cost to property owners who were responsible for making corrections on their own property.

2008 Illegal Connection Remediation Program Summary

Illegal Connections Listed January 1, 2009	41
Connections Determined to be Properly Connected to Sewers	1
Connections Suspected of Having other Defects	2
Illegal Connections Identified in 2009	32
Illegal Connections Corrected in 2009	44
Illegal Connections Outstanding December 31, 2009	26

Tables 1 through 5 provide more detailed information on the Commission's Illegal Connection Remediation Program.

Table 2-4: Table 2-4 lists the location of illegal connections that existed at the beginning of 2009, including the dates of confirming dye tests, and the receiving waters. Table 2-4 also indicates whether the illegal connection was corrected in 2009.

There were forty-one (41) illegal connections listed at the beginning of 2009. In 2009, the Commission made a targeted effort to eliminate the longest standing illegal connections. Most of the longest standing illegal connections were "difficult corrections", i.e. there were extenuating circumstances (such as those described in Section 2.4.) making them difficult to corrected. Of the outstanding illegal connections, seven (7) had already been corrected by the owner but not reported to the Commission, or they were in the process of being corrected by the owner, and the correction was completed in 2009; enforcement notices were sent to another seventeen (17) owners, directing them to correct the illegal connections in their buildings; of those, nine (9)

owners quickly eliminated the illegal connection; one (1) illegal connection was determined to be properly connected to the sewer system; five (5) were corrected by the Commission's contractor; two (2) are suspected of being leaking sewer laterals as opposed to direct illegal connections; they will be investigated under a separate program to be implemented by the Commission in 2010; seventeen (17) illegal connections originally listed on Table 1 remained to be corrected as of the end of 2009.

Table 2-5: Table 2-5 lists the illegal connections identified during 2009. Thirty-two (32) illegal connections were identified in 2009, twenty-two (23) of which were corrected in 2009. Nine (9) illegal connections from Table 2 remained to be corrected as of the end of 2009.

Table 2-6: Table 2-6 lists all of the illegal connections corrected in 2009. There were 44 illegal connections corrected in 2009, eighteen (18) of which were corrected by the owner. The other 26 were corrected by the Commission's contractor.

Table 2-7: Table 2-7 combines Tables 1 and 2 and shows the illegal connections that remained to be corrected as of the end of 2009. At the end of 2009, there were twenty-six (26) outstanding illegal connections. Of those, six (6) are under the Commission's contract for correction. Seven (7) illegal connections must be corrected by their owners and the owners have not responded to the Commission's enforcement notice. The Commission's Legal Department will pursue further enforcement in 2010. Seven (7) owners will be notified by the Commission's Legal Department that they must correct illegal connections on their properties. The Commission is working with three (3) owners in regards to illegal connections on their properties. One (1) requires further investigation to determine what is necessary to make the correction. One illegal connection is expected to be corrected in 2010 by the owner, which is the Boston Housing Authority. One illegal connection is believed to have been corrected already but a dye test is needed to confirm it.

b. Illegal Connection Corrections in 2010

In 2010, the Commission will continue to pursue correction of outstanding illegal connections, giving priority to those that have been outstanding for the longest time. As noted in Table 2-7, some of the longest outstanding illegal connections may require enforcement action by the Commission's Legal Department.

BOSTON WATER AND SEWER COMMISSION
ILLEGAL CONNECTION REMEDIATION PROGRAM 2009

Table 2-4: Illegal Connections as of January 1, 2009

Address	Neighborhood	Bldg type	Verified	Outlet Num	Receiving Water	Status at End of 2009
15 Conry Crescent	Jamaica Plain	R-1	06/22/99	DO 15F288	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
519 Metropolitan Avenue	Hyde Park	R-1	10/17/00	OF 23I 023*	Charles River (Stony Brook Conduit)	Corrected by owner
284 Huntington Avenue	Hyde Park	R-1	10/31/00	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
49 Firth Road	Roslindale	R-2	11/13/01	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner/BWSC coordinating
70 Fenway	City Proper	Condo	03/14/02	OF 23I 023*	Charles River (Old Stony Brook)	Corrected by owner
59 Fenway	City Proper	Comm	04/01/04	OF 23I 023*	Charles River (Stony Brook Conduit)	Corrected by owner
1571-1573 Centre Street	West Roxbury	R-3	12/09/04	OF 23I 023*	Charles River (Stony Brook Conduit)	Suspected lateral problem
75 Farrar Avenue	Hyde Park	R-1	12/27/04	DO 06G 108	Neponset River	Corrected under BWSC contract
74 Fenway	City Proper	Condo	01/05/05	OF 23I 023*	Charles River (Old Stony Brook)	Corrected by owner
9 Farquhar Street	Roslindale	R-2	01/12/05	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
1045 Canterbury Street	Roslindale	Apt	04/05/06	OF 23I 023*	Charles River (Stony Brook Conduit)	Corrected by owner
537-551 Tremont Street	South End	Exempt	06/07/06	OF 22K 071	To Combined Sewer Downstream	Design complete-referred to contract
13 Ruggles Street	Roxbury	Comm	09/07/06	OF 23I 023*	Charles River (Old Stony Brook)	Corrected under BWSC contract
4 Arbella Road	Dorchester	R-1	10/17/06	DO 10L 094	Neponset River	Owner not responding-Referred to Legal for enforcement
1082 Canterbury Street	Roslindale	R-2	10/18/06	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
57 Stockton Street	Dorchester	R-2	10/18/06	DO 10L 094	Neponset River	Corrected by owner
68 Stockton Street	Dorchester	R-2	10/19/06	DO 10L 094	Neponset River	Corrected by owner
276 Corey Road	Brighton	Condo	04/12/07	DO 24G 035	Charles River	Additional dye testing planned
103 Laurie Avenue	West Roxbury	R-1	06/20/07	DO 07C 006	Charles River	Suspected lateral problem
48 Montmorenci Avenue	East Boston	R-1	07/02/07	DO 29O 001	Boston Harbor (Constitution Beach)	Corrected by owner
223 Gladstone Street	East Boston	R-1	07/05/07	DO 29O 001	Boston Harbor (Constitution Beach)	Corrected by owner
1 Sparrow Street	West Roxbury	R-1	07/24/07	DO 07C 006	Charles River	Corrected under BWSC contract
679 Adams Street	Dorchester	R-1	08/01/07	OF 10L 094	Neponset River	Corrected under BWSC contract
606 Park Street	Dorchester	R-3	08/06/07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Corrected by owner
636-638 West Park Street	Dorchester	R-3	10/10/07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Corrected by owner
695 Bennington Street	East Boston	R-3	10/24/07	DO 29O 001	Boston Harbor (Constitution Beach)	Corrected by owner
21 Levant Street	Dorchester	R-3	11/02/07	OF 13L 090	Neponset River/Dorchester Bay	Corrected by owner
27 Irma Street	Dorchester	R-3	11/19/07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Owner not responding-Referred to Legal for enforcement
51-53 Mapleton Street	Brighton	R-2	12/27/07	DO 24D 032	Charles River	Legal issue/Owner/BWSC coordinating
22 Birchcroft Road	Hyde Park	R-1	12/28/07	DO 06G 108	Neponset River	Additional investigation needed
11 Middleton Street	Dorchester	R-3	02/04/08	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Corrected by owner
39 Englewood Avenue	Brighton	Condo	02/12/08	DMH 20D055	Muddy River (via Brookline/Village Brook)	Owner not responding-Referred to Legal for enforcement
159 Sutherland Road	Brighton	Comm	02/12/08	DMH 21D 319	Muddy River (via Brookline/Village Brook)	Corrected by owner
97 Kilsyth Road	Brighton	R-3	02/13/08	DMH 21D 219	Muddy River (via Brookline/Village Brook)	Reported as corrected 2/05 but still illegal; under BWSC contract
55 Montmorenci Avenue	East Boston	R-1	02/19/08	DO 29O 001	Boston Harbor (Constitution Beach)	Corrected under BWSC contract
99 Kilsyth Road	Brighton	R-3	02/21/08	DMH 21D 219	Muddy River (via Brookline/Village Brook)	Reported as corrected 2/05 but still illegal; under BWSC contract
21-25 Autumn Street	Fenway	Exempt	05/21/08	DO 20G 163	Muddy River (Riverway) to Charles River	Corrected by owner
50 Binney Street	Fenway	Exempt	05/28/08	DO 21H 047	Muddy River to Charles River	Dye test planned to confirm correction
86 Foster Street	Brighton	R-1	05/29/08	DO 24D 032	Charles River	Suspected lateral problem
25 Warren Street	Brighton	School	06/27/08	DO 25E 037	Charles River	Referred to Legal for enforcement
125 Garfield Street	Hyde Park	Exempt	07/07/08	DO 04F 204	Neponset River	BHA Investigating

* MWRA Outfall

BOSTON WATER AND SEWER COMMISSION
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Table 2-5: Illegal Connections Identified in 2009

Address	Neighborhood	Bldg type	Date Verified	Outlet Num	Receiving Water	Status	Date corrected	Sewage Rem
170 Corey Road	Brighton	Comm	01-Apr-09	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Repaired by Owner	19-May-09	255.00
101 Almont Street	Mattapan	R-1	04-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	09-Jun-09	154.86
52 Emmonsdale Road	West Roxbury	R-1	04-May-09	DO 07C 006	Charles River	Corrected under BWSC contract	05-Oct-09	139.34
15 Williams Avenue	Hyde Park	R-1	05-May-09	DO 05F 117	Neponset River	Corrected under BWSC contract	11-Nov-09	161.48
66 Wood Avenue	Mattapan	R-1	05-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	16-Sep-09	138.58
65 Wood Avenue	Mattapan	R-1	07-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	11-Jun-09	224.17
5-7 Mason Street	Hyde Park	R-2	25-Jun-09	DO 04F 118	Neponset River	Corrected under BWSC contract	23-Jul-09	327.38
88 Sprague Street	Hyde Park	R-1	27-Jun-09	DO 01E 024	Neponset River	Corrected under BWSC contract	09-Sep-09	82.24
375 Baker Street	West Roxbury	R-1	30-Jun-09	DO 11B 123	Charles River	Owner will be notified by Legal		
6 Brushwood Circle	Hyde Park	R-1	30-Jun-09	DO 06G 111	Neponset River	Corrected under BWSC contract	02-Sep-09	116.65
150 Westminster Street	Hyde Park	R-1	30-Jun-09	DO 06G 108	Neponset River	Corrected under BWSC contract	18-Aug-09	133.14
14 Brushwood Circle	Hyde Park	R-1	01-Jul-09	DO 06G 111	Neponset River	Corrected under BWSC contract	01-Sep-09	133.90
25 Derry Road	Hyde Park	R-1	01-Jul-09	DO 06G 108	Neponset River	Corrected under BWSC contract	10-Aug-09	91.99
21 Derry Road	Hyde Park	R-1	02-Jul-09	DO 06G 108	Neponset River	Corrected under BWSC contract	04-Aug-09	231.29
9 Neptune Circle	East Boston	R-1	09-Jul-09	DO 28N 207	Boston Harbor	Repaired by Owner	03-Sep-09	3.00
56 Arlington Street	Hyde Park	R-1	12-Aug-09	DO 06G 110	Neponset River	Corrected under BWSC contract	17-Sep-09	103.45
18 Ledgebrook Road	Mattapan	R-2	12-Aug-09	DO 08I 207	Neponset River	Corrected under BWSC contract	23-Sep-09	171.31
36 Saranac Street	Dorchester	R-2	25-Aug-09	DO 10L 094	Neponset River	Corrected under BWSC contract	15-Oct-09	986.04
145-143 Minot Street	Dorchester	R-2	26-Aug-09	DO 10L 094	Neponset River	Corrected under BWSC contract	09-Oct-09	161.51
153 Sanborn Avenue	West Roxbury	R-1	03-Sep-09	DO 11B 123	Charles River	Corrected under BWSC contract	23-Oct-09	60.80
42 Florida Street	Dorchester	R-4	15-Sep-09	OF 13L 090	Neponset River/Dorchester Bay	Under Contract		
67 Perkins Street	Jamaica Plain	R-1	21-Sep-09	DO 18G 233	Muddy River (Leverett Pond)	Corrected under BWSC contract	02-Nov-09	349.07
433 Baker Street	West Roxbury	R-1	22-Sep-09	DO 11B 123	Charles River	Corrected under BWSC contract	02-Dec-09	134.68
83 Farrar Avenue	Hyde Park	R-1	07-Oct-09	DO 06G 108	Neponset River	Owner will be notified by Legal		
71 Sanborn Avenue	West Roxbury	R-1	07-Oct-09	DO 11B 123	Charles River	Corrected under BWSC contract	14-Dec-09	104.33
365 Western Avenue	Brighton	Comm	08-Oct-09	DO 25E 037	Charles River	Owner will be notified by Legal		
197 Hamilton Street	Dorchester	R-4	21-Oct-09	DO 13K 090	Dorchester Bay	Owner will be notified by Legal		
126 Sanborn Avenue	West Roxbury	R-1	04-Nov-09	DO 11B 123	Charles River	Owner will be notified by Legal		
16 Chittick Road	Hyde Park	R-2	06-Nov-09	DO 04F 204	Neponset River	Corrected under BWSC contract		
332 Jamaicaway	Jamaica Plain	Condos	09-Dec-09	DO 18G 233	Muddy River (Leverett Pond)	Corrected under BWSC contract	09-Dec-09	1138.63
90-92 Readville Street	Hyde Park	Condo	14-Dec-09	DO 04E 069	Neponset River (Mother Brook)	Under Contract		
10 Milton Terrace	Hyde Park	R-1	28-Dec-09	DO 05G 116A	Neponset River	Under Contract		

BOSTON WATER AND SEWER COMMISSION
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Table 2-6: Illegal Connections Corrected in 2009

Address	Neighborhood	Bldg type	Verified	Outlet Num	Receiving Water	Repaired by	sewage removed
519 Metropolitan Avenue	Hyde Park	R-1	17-Oct-00	OF 23I 023*	Charles River (Stony Brook Conduit)	Repaired by Owner	156.73
70 Fenway	City Proper	Condo	14-Mar-02	OF 23I 023*	Combined sewer downstream	Repaired by Owner	0.00
59 Fenway	City Proper	Comm	01-Apr-04	OF 23I 023*	Charles River (Stony Brook Conduit)	Repaired by Owner	588.95
75 Farrar Avenue	Hyde Park	R-1	27-Dec-04	DO 06G 108	Neponset River	Corrected under BWSC contract	70.27
74 Fenway	City Proper	Condo	05-Jan-05	OF 23I 023*	Combined sewer downstream	Repaired by Owner	0.00
1045 Canterbury Street	Roslindale	Apt	05-Apr-06	OF 23I 023*	Charles River (Stony Brook Conduit)	Repaired by Owner	8.02
13 Ruggles Street	Roxbury	Comm	07-Sep-06	OF 23I 023*	Charles River (Old Stony Brook)	Corrected under BWSC contract	711.15
57 Stockton Street	Dorchester	R-2	18-Oct-06	DO 10L 094	Neponset River	Repaired by Owner	14.00
68 Stockton Street	Dorchester	R-2	19-Oct-06	DO 10L 094	Neponset River	Repaired by Owner	56.76
48 Montmorenci Avenue	East Boston	R-1	02-Jul-07	DO 29O 001	Boston Harbor (Constitution Beach)	Repaired by Owner	26.40
223 Gladstone Street	East Boston	R-1	05-Jul-07	DO 29O 001	Boston Harbor (Constitution Beach)	Repaired by Owner	15.00
1 Sparrow Street	West Roxbury	R-1	24-Jul-07	DO 07C 006	Charles River	Corrected under BWSC contract	174.64
679 Adams Street	Dorchester	R-1	01-Aug-07	OF 10L 094	Neponset River	Corrected under BWSC contract	75.65
606 Park Street	Dorchester	R-3	06-Aug-07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Repaired by Owner	61.00
636-638 West Park Street	Dorchester	R-3	10-Oct-07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Repaired by Owner	328.67
695 Bennington Street	East Boston	R-3	24-Oct-07	DO 29O 001	Boston Harbor (Constitution Beach)	Repaired by Owner	42.26
21 Levant Street	Dorchester	R-3	02-Nov-07	OF 13L 090	Neponset River/Dorchester Bay	Repaired by Owner	372.04
11 Middleton Street	Dorchester	R-3	04-Feb-08	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Repaired by Owner	315.66
159 Sutherland Road	Brighton	Comm	12-Feb-08	DMH 21D 319	Muddy River (via Brookline/Village Brook)	Repaired by Owner	8.40
55 Montmorenci Avenue	East Boston	R-1	19-Feb-08	DO 29O 001	Boston Harbor (Constitution Beach)	Corrected under BWSC contract	145.42
21-25 Autumn Street	Fenway	Exempt	21-May-08	DO 20G 163	Muddy River (Riverway) to Charles River	Repaired by Owner	20.00
170 Corey Road	Brighton	Comm	01-Apr-09	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Repaired by Owner	255.00
101 Almont Street	Mattapan	R-1	04-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	154.86
52 Emmonsdale Road	West Roxbury	R-1	04-May-09	DO 07C 006	Charles River	Corrected under BWSC contract	139.34
15 Williams Avenue	Hyde Park	R-1	05-May-09	DO 05F 117	Neponset River	Corrected under BWSC contract	161.48
66 Wood Avenue	Mattapan	R-1	05-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	138.58
65 Wood Avenue	Mattapan	R-1	07-May-09	DO 07H 105	Neponset River	Corrected under BWSC contract	224.17
5-7 Mason Street	Hyde Park	R-2	25-Jun-09	DO 04F 118	Neponset River	Corrected under BWSC contract	327.38
88 Sprague Street	Hyde Park	R-1	27-Jun-09	DO 01E 024	Neponset River	Corrected under BWSC contract	82.24
6 Brushwood Circle	Hyde Park	R-1	30-Jun-09	DO 06G 111	Neponset River	Corrected under BWSC contract	116.65
150 Westminster Street	Hyde Park	R-1	30-Jun-09	DO 06G 108	Neponset River	Corrected under BWSC contract	133.14
14 Brushwood Circle	Hyde Park	R-1	01-Jul-09	DO 06G 111	Neponset River	Corrected under BWSC contract	133.90
25 Derry Road	Hyde Park	R-1	01-Jul-09	DO 06G 108	Neponset River	Corrected under BWSC contract	91.99
21 Derry Road	Hyde Park	R-1	02-Jul-09	DO 06G 108	Neponset River	Corrected under BWSC contract	231.29
9 Neptune Circle	East Boston	R-1	09-Jul-09	DO 28N 207	Boston Harbor	Repaired by Owner	3.00
56 Arlington Street	Hyde Park	R-1	12-Aug-09	DO 06G 110	Neponset River	Corrected under BWSC contract	103.45
18 Ledgebrook Road	Mattapan	R-2	12-Aug-09	DO 08I 207	Neponset River	Corrected under BWSC contract	171.31
36 Saranac Street	Dorchester	R-2	25-Aug-09	DO 10L 094	Neponset River	Corrected under BWSC contract	986.04
145-143 Minot Street	Dorchester	R-2	26-Aug-09	DO 10L 094	Neponset River	Corrected under BWSC contract	161.51
153 Sanborn Avenue	West Roxbury	R-1	03-Sep-09	DO 11B 123	Charles River	Corrected under BWSC contract	60.80

* MWRA Outfall

BOSTON WATER AND SEWER COMMISSION
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Table 2-6: Illegal Connections Corrected in 2009

Address	Neighborhood	Bldg type	Verified	Outlet Num	Receiving Water	Repaired by	sewage removed
67 Perkins Street	Jamaica Plain	R-1	21-Sep-09	DO 18G 233	Muddy River (Leverett Pond)	Corrected under BWSC contract	349.07
433 Baker Street	West Roxbury	R-1	22-Sep-09	DO 11B 123	Charles River	Corrected under BWSC contract	134.68
71 Sanborn Avenue	West Roxbury	R-1	07-Oct-09	DO 11B 123	Charles River	Corrected under BWSC contract	104.33
332 Jamaicaway	Jamaica Plain	Condos	09-Dec-09	DO 18G 233	Muddy River (Leverett Pond)	Corrected under BWSC contract	1138.63

* MWRA Outfall

BOSTON WATER AND SEWER COMMISSION
ILLEGAL CONNECTION REMEDIATION PROGRAM 2009

Table 2-7: Illegal Connections as of December 31, 2009

Address	Neighborhood	Bldg type	Date Verified	Outlet Num	Receiving Water	Status at End of 2009
15 Conry Crescent	Jamaica Plain	R-1	22-Jun-99	DO 15F288	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
284 Huntington Avenue	Hyde Park	R-1	31-Oct-00	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
49 Firth Road	Roslindale	R-2	13-Nov-01	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner/BWSC coordinating
9 Farquhar Street	Roslindale	R-2	12-Jan-05	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
537-551 Tremont Street	South End	Exempt	07-Jun-06	OF 22K 071	To Combined Sewer Downstream	Design complete; referred to BWSC contract
4 Arbella Road	Dorchester	R-1	17-Oct-06	DO 10L 094	Neponset River	Owner not responding-Referred to Legal for enforcement
1082 Canterbury Street	Roslindale	R-2	18-Oct-06	OF 23I 023*	Charles River (Stony Brook Conduit)	Owner not responding-Referred to Legal for enforcement
276 Corey Road	Brighton	Condo	12-Apr-07	DO 24G 035	Charles River	Additional dye testing planned
27 Irma Street	Dorchester	R-3	19-Nov-07	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Owner not responding-Referred to Legal for enforcement
51-53 Mapleton Street	Brighton	R-2	27-Dec-07	DO 24D 032	Charles River	Legal issue/Owner/BWSC coordinating
22 Birchcroft Road	Hyde Park	R-1	28-Dec-07	DO 06G 108	Neponset River	Special Design being prepared
39 Englewood Avenue	Brighton	Condo	12-Feb-08	DMH 20D055	Muddy River (via Brookline/Village Brook)	Owner not responding-Referred to Legal for enforcement
97 Kilsyth Road	Brighton	R-3	13-Feb-08	DMH 21D 219	Muddy River (via Brookline/Village Brook)	Reported as corrected 2/05 but still illegal; under BWSC contract
99 Kilsyth Road	Brighton	R-3	21-Feb-08	DMH 21D 219	Muddy River (via Brookline/Village Brook)	Reported as corrected 2/05 but still illegal; under BWSC contract
50 Binney Street	Fenway	Exempt	28-May-08	DO 21H 047	Muddy River to Charles River	Dye test planned to confirm correction
25 Warren Street	Brighton	School	27-Jun-08	DO 25E 037	Charles River	Internal connection-Owner to be notified by Legal Dept.
125 Garfield Street	Hyde Park	Exempt	07-Jul-08	DO 04F 204	Neponset River	To be corrected by BHA in 2010
375 Baker Street	West Roxbury	R-1	30-Jun-09	DO 11B 123	Charles River	Internal connection-Owner to be notified by Legal Dept.
42 Florida Street	Dorchester	R-4	15-Sep-09	OF 13L 090	Neponset River/Dorchester Bay	Under Contract
83 Farrar Avenue	Hyde Park	R-1	07-Oct-09	DO 06G 108	Neponset River	Internal connection-Owner to be notified by Legal Dept.
71 Sanborn Avenue	West Roxbury	R-1	07-Oct-09	DO 11B 123	Charles River	Under Contract
365 Western Avenue	Brighton	Comm	08-Oct-09	DO 25E 037	Charles River	Internal connection-Owner to be notified by Legal Dept.
197 Hamilton Street	Dorchester	R-4	21-Oct-09	DO 13K 090	Dorchester Bay	Internal connection-Owner to be notified by Legal Dept.
126 Sanborn Avenue	West Roxbury	R-1	04-Nov-09	DO 11B 123	Charles River	Internal connection-Owner to be notified by Legal Dept.
90-92 Readville Street	Hyde Park	Condo	14-Dec-09	DO 04E 069	Neponset River (Mother Brook)	Under Contract
10 Milton Terrace	Hyde Park	R-1	28-Dec-09	05G 116A	Neponset River	Under Contract

* MWRA Outfall

3.0 STORMWATER MANAGEMENT ACTIVITIES

The Stormwater Management Program consists of a variety of programs, activities, and best management practices aimed at preventing the discharge of pollutants to storm drains and receiving waters. These measures include maintenance, structural, managerial, regulatory, and educational programs. Key elements of the Commission's Stormwater Management Program are described in this section.

3.1 OPERATION AND MAINTENANCE OF STRUCTURAL CONTROLS

Combined sewer overflows, sanitary sewer overflows, sewage infiltration into storm drains and system backups can be prevented by maintaining the capacity and structural integrity of the sewerage and drainage systems. The Commission accomplishes this by cleaning, repairing or replacing sanitary and combined sewers and storm drains, separating combined sewers, and by preventing and removing infiltration and inflow to the sewer system. To determine where structural deficiencies exist and where repairs are needed the Commission performs television inspections of sewers and drains.

Since the Commission's inception in 1977, major sewer system improvements have resulted in increased system capacity and the virtual elimination of dry weather overflows from combined sewers into Boston Harbor and the Neponset, Charles, and Mystic Rivers.

Over the last several years, the Commission has completed major sewer separation projects under the court ordered MWRA CSO Plan. Separation work has been completed in Dorchester, in the Stony Brook area of Jamaica Plain, in the Constitution Beach area of East Boston, and most recently, in the Fort Point Channel area in South Boston.

A major project recently completed by the Commission is the Morrissey Boulevard Drainage Conduit (MBDC) project. The MBDC project was undertaken by the Commission on behalf of the Massachusetts Water Resources Authority in conjunction with the Authority's North Dorchester Bay CSO Storage Tunnel (NDBST) Project. The MBDC currently collects stormwater flows from Morrissey Boulevard and its side roads, and conveys it to Dorchester Bay. Stormwater discharges to the MBDC are treated by several particle separators that were constructed on storm drains serving businesses along Morrissey Boulevard. The new particle separators are owned and maintained by the owners of the properties where they are located.

Once MWRA completes the NDBST Project, stormwater flows from the recently separated area tributary to BOS087 generated from smaller storms will be conveyed to the NDBST and to Deer Island to be treated, while stormwater flows generated from

larger storms will be directed to the MBDC. This will allow for the elimination of outfall BOS087 located near Mother's Rest.

a. Storm Drain and Sewer Maintenance by BWSC Staff

The Commission's Operations Division is responsible for smaller sewer and drain related repair, maintenance and cleaning jobs, as well as some television inspections of sewers and drains. In 2009, the Commission responded to 749 reports of blockages or breaks in sewers or drains. Also, the Commission jetted, vactored or rodded 467,709 linear feet of pipe.

In 2009, the Commission operated five (5) "vactor" high-pressure cleaning trucks to clean accumulated materials from sewers and drains. The Commission also operated six (6) jet trucks, one (1) multi-rodder truck, and two (2) hydraulic bucket machines to clear blockages. To the greatest extent possible, the material dislodged in this process is removed from the drains. To determine where structural deficiencies exist and where repairs are needed, the Commission crews performed television inspections of 17,023 linear feet of sewer and drain pipe in 2009.

In conjunction with the storm drain and catch basin cleaning programs, the Commission routinely clears debris from eleven (11) brook inlets and outlets throughout the City. Since the primary purpose of this practice is to prevent upstream flooding, the cleaning is typically performed immediately prior to major storm events and usually they are checked after storm events to determine if follow up cleaning is needed. The locations and frequency of cleaning is provided in Table 3 – 1.

b. Catch Basin Maintenance

The Commission has approximately 31,752 catch basins in its sewer and drainage systems. Other catch basins in the city are owned by other public agencies such as the state Department of Conservation and Recreation, Mass Department of Transportation, or are located on private property.

The Commission currently owns seven (7) clamshell trucks. Commission forces have been supplemented by contract forces and equipment since 2001. Under the current citywide catch basin cleaning contract the contractor is instructed to inspect all Commission owned catch basins, and clean any basin containing at least two feet of sediment. Contractors typically complete two passes through the city each year cleaning basins as directed by the Commission.

In 2009, Commission and contract forces cleaned 11,909 individual catch basins, some of which were cleaned more than once. Catch basin cleanings are currently transported to the Commission's Calf Pasture site where they are temporarily stored until transferred to an approved landfill. The material cleaned from catch basins is stored with material removed from sewers and drains. An estimated 18,430 cubic yards of material taken from sewers, drains and catch basins was transferred by the Commission's contractor in

Table 3 - 1 Brook Inlet and Outlet Cleaning

Waterway	Neighborhood	Frequency of Cleaning	Equipment Used
Canterbury Brook Conduit @ American Legion Hwy	Roslindale	Checked before/after storms; cleaned as needed	Rodding/Flushing crew/ Catch Basin Truck
Canterbury Brook Outlet at Harvard Street	Mattapan	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew
Bussey Brook-Next to Church Of the Annunciation	West Roxbury	Checked before/after storms; cleaned as needed	Catch Basin Truck, Crane
Bussey Brook/Stony Brook Conduit/Treeland	Jamaica Plain	Checked before/after storms; cleaned as needed	Catch Basin Truck
Muddy River-Riverway and the Fenway/Grates	Boston	Checked before/after storms; cleaned as needed	Catch Basin Truck, Crane
Centre Street/Lane	West Roxbury	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew
Norton Street-intermittent stream	Hyde Park	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew
Grove Street-Wetlands (particle separator)	West Roxbury	Checked before/after storms; cleaned as needed	Catch Basin Truck, Vactor
Arboretum Outfall	Jamaica Plain	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew
Chandler Pond	Brighton	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew
Mother Brook	West Roxbury	Checked before/after storms; cleaned as needed	Flushing/Rodding Crew

2009. It is not known how much of the material transported was just from the catch basins, although it is believed to be a majority of the amount.

c. Commission Particle Separators

The Commission evaluates whether installation of particle separators is feasible and appropriate when designing storm drain capital improvement projects. The total number of particle separators owned by the Commission currently remains at 15. Information regarding the various particle separators, including their locations, receiving waters, and inspection and cleaning dates in 2009 is summarized in Table 3-2. As assessment as to the effectiveness of the Commission's particle separators in removing sediments is provided in Section 9.

d. Large Storm Drain and Sewer Programs under BWSC's CIP

Large cleaning and maintenance jobs are performed by outside contractors under the Commission's Capital Improvement Program. The Commission's three-year Capital Improvement Program (CIP) is updated annually. The 2009-2011 CIP included $70.4 million for sewer and drain related projects, of which $28.9 million was earmarked for 2009.

The Commission's 2010-2012 CIP plan identifies $44.1 million for sewer and drain related projects, of which $14.1 million is earmarked for 2010. These costs do not include the cost of CSO separation projects that are being funded by the MWRA under the MWRA's CSO Control Plan. They do, however, include the Commission's costs for water and sewer work relating to the MWRA's CSO Control Plan that is not eligible for MWRA funding.

Highlights of the Commission's 2009-2011 Capital Improvement Program are provided below. The complete 2010-2012 CIP plan is available on the Commission's website at www.bwsc.org.

Increased Capacity Projects

The Commission continues to make capital investments to increase capacity in some areas and maximize capacity in other areas. The goals of these projects are to ensure sufficient hydraulic flow in all areas of the city, reduce long-term maintenance costs, minimize the frequency and volume of CSO discharges, and maintain the structural integrity of the wastewater collection system.

Projects funded under the 2009-2010 CIP included installation of drainage outfalls to replace abandoned CSO outfalls in East Boston, replacement of two tidegates in East Boston, replacement of the storm drain on Brainard Road in Brighton and cleaning of CSO Outfall 010 in East Boston.

Table 3 - 2 BWSC Particle Separators 2009

Location	Neighborhood	Type	Map #	Outfall #	Receiving Water	Clean Date	2009-Amt of Material Removed (cubic yards)
Arnold Arboretum	Jamaica Plain	Vortex	13F	13F011	Bussy Brook	5/28/2009	1.00
Centre Lane	West Roxbury	Vortex	8C	8C025,8C026	Wetlands	6/10/2009	0.10
Centre Street	West Roxbury	Vortex	6C	6C110	Wetlands	6/10/2009	0.50
Coleridge Street	East Boston	Box	28O	28O025	Boston Harbor	6/11/2009	0.25
Coniston Road	Roslindale	Box	12E	13I023	Stony Brook Conduit	5/28/2009	0.00
Denny Street	Dorchester	Vortex	15L	15L089 (CSO)	Malibu Beach	5/29/2009	1.00
Ericsson Street	Dorchester	Box	12M	12M091	Neponset River	6/12/2009	0.25
Fenwood Road	Roxbury	Box	20G	20G161	Muddy River	6/13/2009	2.25
Lawley Street	Dorchester	Box	12L	12L092	Pine Neck Creek	6/12/2009	0.25
Neponset Avenue	Dorchester	Box	11M	11M093	Neponset River	6/13/2009	1.50
Norton Street	Hyde Park	Box	3E	3E185	Open Channel	5/28/2009	0.13
Perkins Street	Jamaica Plain	Vortex	17F	17F012	Jamaica Pond	5/27/2009	1.50
15 Waldemar Ave.	East Boston	Box	30P	30P107	Belle Isle Inlet	6/11/2009	0.10
240 Waldemar Ave.	East Boston	Box	31O	31O004	Belle Isle Inlet	6/11/2009	0.75
Walter Street	Roslindale	Vortex	12F	12E418	Wetlands	5/29/2009	0.25

I/I Reduction Program

The 2009-2011 CIP included funding to decrease the amounts of infiltration and inflow entering the sewer system. Removal of I/I retains and restores the capacity of the sewer system and helps prevent sewer overflows. The 2009-2011 CIP included funding to complete infiltration and inflow evaluations of the Longwood Medical Area sewer system and the West Roxbury Low Level Sewer. Also included was funding to disconnect downspouts connected to combined and sanitary sewers in Jamaica Plain, Dorchester, Neponset, Ward Street, Allston/Brighton, West Roxbury, Roslindale, South Boston and Hyde Park. In 2009, the Commission disconnected 113 downspouts from sewers or combined sewers.

Sewer Renewal and Replacement

Renewal and replacement (R/R) projects involve the rehabilitation or replacement of sewers and storm drains because of structural deterioration, excessive emergency repairs, and other operation and maintenance problems. The Commission identifies sewer and drain lines that require renewal or replacement through television inspections, sewer system evaluation surveys, and routine maintenance activities.

The 2009-2011 CIP provided funding for numerous sewer renewal and replacement projects citywide, including re-design of a 20-inch sewer in East Boston into a more accessible and better engineered layout, replacement and rehabilitation of sewer and drain pipes in poor condition in the Savin Hill area of Dorchester, and rehabilitation and renewal of sewers and drains performed in conjunction with the Commission's major combined sewer overflow control projects.

Sewer Separation

The primary purpose of sewer separation is to reduce the frequency and volume of wet weather CSO discharges. The Commission's separation program involves the conversion of combined sewer systems to separate sanitary sewer and storm drain systems. Typically, separation is achieved by converting the combined sewer to a sanitary sewer and installing a new storm drain.

The 2009-2011 CIP provided funding for numerous sewer separation projects, including major CSO sewer separation projects at Bullfinch Triangle and in South Boston, relocation of the regulator on the Dorchester Brook Sewer, and preliminary design of sewer separation in Roxbury. Included in this category of CIP funding is the Citywide Illegal Connection Investigation program, correction of illegal connections by a Commission contractor, the Commission's program for reimbursing homeowners for the correction of illegal connections on their property.

Sewer/Drain Special Projects

The Sewer System Special Projects category of capital funding provides for a variety of system planning and other studies, and for professional services relating to the rehabilitation and operation of the sewer and drainage systems. Major projects funded under the special projects category include rehabilitation of the Dorchester Interceptor, the NPDES Stormwater Monitoring Program, improvements to the Union Park and satellite pumping stations, and maintenance of a sewer model. Funding is included under this category for unanticipated projects and emergency situations.

3.2 CONTROL OF NON-STORMWATER DISCHARGES TO THE DRAINAGE SYSTEM

a. Drainage Discharge Permits

Article C, Section 5 of the Commission's Sewer Use Regulations describes the discharge prohibitions and restrictions applicable to the Commission's storm drainage system. Under the Sewer Use Regulations any discharge of wastewater or other waters not composed entirely of stormwater into a building storm drain or a Commission storm drain is prohibited, except as authorized by the regulations. Authorized discharges include discharges for which the owner has obtained both a Drainage Discharge Permit from the Commission and an NPDES Permit or NPDES Permit Exclusion from EPA, as well as such discharges as river or stream flow, rising groundwater, uncontaminated groundwater, waters from hydrant flushing, and other potable water sources associated with the maintenance of the water distribution system or fire fighting, irrigation water, and street and pavement wash waters.

Discharges requiring a Drainage Discharge Permit include permanent subsurface drainage, non-contact cooling water, non-contact industrial process water, or waters associated with hydrological testing, groundwater treatment/remediation, and removal and installation of an underground storage tank. Drainage Discharge Permits are issued by the Commission's Engineering Services Division. The Commission may deny or condition a Drainage Discharge Permit to prevent the discharge of contaminants to the storm drainage system. Failure to obtain a Drainage Discharge Permit from the Commission carries a fine of up to $1,000 per day of violation under Sewer Use Regulations. In 2009, the Commission issued 7 Drainage Discharge Permits for discharges to storm drains.

The requirements for Drainage Discharge Permits are described in the Commission's Requirements for Site Plans, and developers and potential dischargers are informed of the requirements when they request a General Service Application for a building sewer or building storm drain connection. In addition, owners and developers are informed of the Drainage Discharge Permit requirements through comment letters submitted by the Commission to Massachusetts Environmental Policy Act (MEPA) Unit and the Boston Redevelopment Authority in response to Environmental Impact Reports.

b. Abrasive Blasting or Chemical Cleaning Permits

For any project involving repair or cleaning of existing masonry, the project proponent is required to obtain from the Boston Air Pollution Control Commission a permit for Abrasive Blasting or Chemical Cleaning.

In accordance with the permits, applicants are required to provide a detailed description as to how chemical mist and run-off will be contained and either treated before discharge to the sewer or drainage system or collected and disposed of lawfully off site. Air Pollution Control Commission representatives perform periodic spot checks of project sites to ensure that the proponent is complying with the permit.

The Air Pollution Control Commission reports to the Commission any violations they observe which result in the discharge of contaminants to drainage system from the cleaning operation. No violations were reported to the Commission by the Air Pollution Control Commission in 2009.

c. Illegal Dumping and Emergency Spill Response

The Commission's Sewer Use Regulations prohibit the dumping of any material into a catch basin, including any solid waste, construction debris, paint or painting product, antifreeze, hazardous waste, oil, gasoline, grease and all other automotive and petroleum products, solvents and degreasers, drain cleaners, commercial and household cleaners, soap, detergent, ammonia, food and food waste, grass or yard waste, leaves, animal feces, dirt, sand, gravel or other pollutant. Illegal dumping to catch basins carries a fine of up to $5,000 per day of violation under the Commission's Sewer Use Regulations.

Reports of illegal dumping to catch basins are directed to the Engineering Field Services Division which dispatches staff immediately to investigate. Upon investigation, if the violator can be identified, the violator is required to pay for cleaning of the affected catch basins, sewers, or storm drains. If the Commission does not observe the dumping in progress, but has good reason to believe a particular party is responsible, the Commission may verbally warn them of the environmental and legal ramifications of the action. When the violator cannot be identified, the Commission pays for a licensed contractor to clean out the affected catch basins, sewers and drains.

Commission crews are available 24-hours a day to assist the Department of Environmental Protection, the Boston Fire Department and the U.S. Coast Guard in determining where a hazardous spill has entered or could potentially enter the Commission's wastewater or storm drainage systems. If the spill has entered either system, Commission personnel determine how far the contamination has traveled and whether there is the risk of an overflow to a waterway. The Commission also attempts to trace the spill upstream to locate and identify its source. When the source of the spill cannot be determined, the Commission pays for a licensed contractor to clean up the spill.

In 2009, Field Engineering responded to 70 reports of a potential spill, leak, or report of illicit dumping. Table 3 – 3 lists the incidences to which the Commission responded in 2009.

d. Used Motor Oil and Paint Collection Centers

The Boston Public Works Department (PWD) operates Surplus Paint Products and Used Motor Oil Drop-Off and Recycling Centers in the neighborhoods of East Boston, Brighton, Roxbury, and Hyde Park. In 2009, each of the centers was open one Saturday a month, 9 a.m. to 1 p.m., from May through August. Amounts of paint and used motor oil collected in 2009 had been requested by not yet provided by PWD as of this writing.

e. Household Hazardous Waste Collection

The Boston Public Works Department hosted four household hazardous waste collection events in 2009, as follows: June 6, and October 31, at the University of Massachusetts Campus, and June 27, and November 21, at the West Roxbury Public Works Yard. The events were promoted through the City's web site, local newspapers, and on signs posted in neighborhood business centers. A leaflet promoting the June Hazardous Waste Collection event was inserted in the Commission's June water bills, and the September/October 2009 issue of the Commission's *Currents* newsletter promoted the November collection event. A copy of the leaflet and the *Currents* newsletter is provided in Appendix A.

The contractor for the hazardous waste collection charged for the service on a "per car" load basis. Amounts of waste collected in 2009 had been requested by not yet provided by PWD as of this writing.

f. Site Cleanliness Ordinance

To address litter and rodent control problems, the City of Boston instituted a Site Cleanliness Ordinance in July, 2000. Under this ordinance, all businesses and large residential establishments using bulk dumpsters, including food and beverage establishments, automotive establishments, and bulk refuse container storage lots, must obtain a Site Cleanliness License from the Boston Inspectional Services Department (ISD). The application for a license must include a site plan showing the location of the dumpster, a plan and schedule for maintenance, a copy of the solid waste disposal contract, and a copy of a rodent/pest control contract. An additional license is required from the PWD if the dumpster is located on a public way.

Inspectional Services officials perform annual inspections of establishments with any license issued by the Department, including a Site Cleanliness license. The Site Cleanliness license will not be renewed unless and until the establishment's dumpster complies with the city ordinance.

Table 3 - 3
Spill/Dumping Response 2009

2009	HAZMAT SPILL & AND LEAKAGE RESPONSE				
	Date	**Street**	**Complainant**	**Type**	**Cause of Incident / Responsible Party**
1	1/9/09	608 Saratoga St, EB	BWSC	Washing down	Comp. washing down bldg. Was directed to stop and clean up area.
2	1/10/09	751 Albany St	Public	Oil near CB	Crew observed speedy dry near cb, not impacted.
3	1/26/09	107 Norfolk Ave, Roxbury	BFD & BPD on site	Fuel Spill	Diesel fuel spill from storage tank at NE Door Supply. 2 CB's impacted. Owner hired Removal Specialist for clean up. Stewart on site to oversee. Aprox. 75 gal total w/in cb's, aprox 1000 on rdwy.
4	2/18/09	646 Blue Hill Ave, Mattapan	BWSC	Dewatering w/o Permit	Directed contractor to stop dewatering until permit is issued.
5	2/19/09	170 Cambridge St, Brighton	BPD	Diesel spill	Spill w/in CXS train yard, aprox 500 gal. Fuel did not impact dain / sewer lines.
6	3/4/09	3162 Washington St, Roxbury	BFD	Disposing of auto fluid	BEST team on site. No sign of illegal discharge of auto fluid.
7	3/12/09	10 Freeport St, Dorchester	BFD	Fuel Spill	Garbage truck struck ballard, released diesel fuel. Enpro on site for clean-up hired by responsible party. Vactored 2 CB's at loc., did not impact system.
8	3/12/09	Fairfield St, Boston	BWSC	Hydraulic Release	Hydraulic release from BWSC vactor. Material contained. Cyn hired by BWSC for clean-up. BPD & BFD on site.
9	3/14/09	4321 Washington St, Roslindale	BPD	Gasoline Release	Gasoline impacted CB due to auto accident. Cyn hired by BWSC to clean CB. Material did not impact main system.
10	3/14/09	27 Edson St, HP	BWSC	Contaminated soil	Roto-Rooter excavating for sewer lateral, encounter possible soil contaminated. DEP, BPD & BFD notified. BFD responded deemed no contamination.
11	3/26/09	23 Corona St, So. Dot	BFD	Gasoline Vapors	Gasoline vapors enter basement apt (illegal) via shower drain. Dye tested hse, dye showed in both sewer and drain.
12	3/30/09	610 Beacon St, Kenmore	BFD	Heating Oil	Aprox 75 gal. spill w/in basement. Material contained, did not impact BWSC lines.
13	4/2/09	77 Charles St, Back Bay	Public	Soap Water	Dumping wash bucket in CB from restaurant. Spoke w/ owner, agreed to discontinue
14	4/6/09	116 Quincy St, Roxbury	BEST	Dumping in CB	No trace of material being dumped. Location was a BEST Strike. Water was S/O per BFD
15	4/10/09	East Eagle, E. Boston	Public	CB Dumping	Cruz Construc dumping to CB due to hose failure. Company hired NWM for clean up
16	4/220/9	715 Albany St	BWSC	Dewatering	Upon inspection found no issues on site
17	4/22/09	601 Albany St	BWSC	Check conc. Disposal	Upon inspection found no issues on site
18	4/27/09	Rutherford Ave. Chstwn	BFD	Fuel Spill	R&C Trucking released diesel fuel due to tank failure. Min. entered CB not in main system. Removal Specialist on site for clean up. HQ5 on site to oversee cleanup

Table 3 - 3
Spill/Dumping Response 2009

2009	HAZMAT SPILL & AND LEAKAGE RESPONSE				
	Date	**Street**	**Complainant**	**Type**	**Cause of Incident / Responsible Party**
19	5/1/2009	45 Morrissey Blvd., Dot	BFD, BPD	Hydraulic Fluid	East Coast Sweeping w/in Shaws parking lot. Did not impact system. Removal Specialists onsite for cleanup
20	5/1/2009	Frawley , JP	BFD	Hydraulic Fluid	N-Star vehicle lost hydraulic fluid, did not impact system. Clean Harbors on site for cleanup
21	5/11/2009	333 West First St, So. Boston	BWSC	Washing out fish buckets	Wong Trading Inc. washing down buckets. Spoke w/ worker and told him to discontinue or a fine will be issued
22	5/11/2009	493 Mass Ave, Back Bay	Public	Discharging water	Owner discharging water from basement into CB. Was told to discontinue
23	5/11/2009	67 Beacon St, Central	Public	Dumping in CB	Window washer dumping soap water into CB, was told to discontinue
24	5/18/2009	725 Albany St, So. End	BFD	Material near CB	Old tree near CB
25	5/19/2009	1856 Dot. Ave, Dot	BFD	Oil Water Sep.	Auto BLDG needs cleaning of separator and CB in front of BDLG. Water was shut off until complied. Removal Specialists onsite for clean up. Water on following day
26	5/27/2009	446 Western Ave, Brighton	BFD	Oil Water Sep.	Inv. Oil Water Sep. Dye test floor drains which goes into oil water sep. No lines impacted
27	5/28/2009	286 Rutherford Ave, Chstwn	BFD	Dumping Paint	BHCC was dumping paint into private CB. Owner hired Triumvirate Env. For clean up. Did not impact lines
28	5/29/2009	East Eagle, E. Boston	BWSC	Discharging Cement	Ref. 4/10/09. Discharging sediment into CB. Spoke w/ contr. Will clean cb and area. Fine will be issued next time.
29	6/10/2009	Norfolk Ave, No Dorchester	Public	Discharging Cement	Dirt, Debris around CB. Spoke w/ local contr., will clean up area
30	6/11/2009	Gardner St, Back Bay	Public	Discharging Bleach	Power washing area. Spoke w/ operator will discontinue
31	6/15/2009	Riverway, JP	Public	Discharging @ Outfall	Inpec. Outfall SDO-161, no sign of material nor odors
32	6/23/2009	Coleridge St, E. Boston	Public	Discharging Cement	No trace of cement w/in CB
33	6/25/2009	Washington St, Dorchester	BPD	Fuel Spill	Fuel Spill due to vehicle accident, Material contained, did not impact system
34	6/26/2009	Cadwell St, Charlsetown	BFD	Fuel Spill	Fuel Spill due to vehicle accident, Material contained, did not impact system. Clean Harbors hired by party to vac. ou CB
35	6/27/2009	Melnea Cass, So. End	BFD	Fuel Spill	Fuel Spill due to vehicle accident, Material contained, did not impact system
36	7/8/2009	Williams Ave, HP	Public	CB Dumping	Check for fuel dumping in CB. No trace found. Operations vactors CB prior to notifying Field Engineering.

Table 3 - 3
Spill/Dumping Response 2009

2009	HAZMAT SPILL & AND LEAKAGE RESPONSE				
	Date	**Street**	**Complainant**	**Type**	**Cause of Incident / Responsible Party**
37	7/8/2009	Fayette St, Central	Public	CB Dumping	Found minimal amount of white substance around CB. Appeared to be from trash (trash day). Not paint
38	7/16/2009	Regis Rd, Mattapan	BFD	CB Dumping	Check surrounding CB's in area, no oil product found
39	7/13/2009	Fort Ave Ter, Roxbury	BWSC Ops	Sewerage going into CB	Sewerage entering CB due to broken lateral @ # 1 Fort Hill Ave Ter. Operations disinfected area. Public Health Dept notified.
40	7/14/2009	Franklin St, Central	Public	Washing material in CB	McCarthy & English washing down sidewalk. Spoke to owner, no chemicals. CB not impacted
41	7/20/2009	Latin Rd, W. Roxbury	Public	CB Dumping	Check for dumping in CB. No material found.
42	7/24/2009	Fayston St, Roxbury	Code Enfcmnt	CB Dumping	Check for Fuel Dumping in CB, no product found.
43	7/29/2009	Codman Hill Ave, So Dot.	BFD	Hazmat Spill Heating oil in CB	Upon Arrival, BFD, BPD, Insp. Ser. On site. Heating oil tank failure, did not impact CB.
44	7/31/2009	Hyde Park Ave, HP	BWSC	By-passing into drain line	AA Will by-passing drain, were directed to remove drain line and discharge onto stone.
45	8/7/09	Franklin Hill Ave, Mattapan	BWSC	CB Dumping	Constr. Material in and around CB. Was cleaned by contractor (IW Harding)
46	8/7/09	Townsend St, Roxbury	Public	CB Dumping	Check for dumping in CB, No material found
47	8/7/09	Shafter St, So. Dorchester	Public	CB Dumping	Small amount of plaster wash down in CB. Was direct to stop.
48	8/18/09	Blue Hill Ave, Mattapan	BFD	Dewatering	Property manager was directed to discontinue pump from sump pump
49	8/19/09	Columbia Rd, No. Dorchester	Public	CB Dumping	Check for dumping in CB, No material found
50	8/24/09	Ranley Rd, Hyde Park	Public	Dewatering	Home owner was directed to discontinue pump from sump pump
51	8/24/09	Morrissey Blvd, No. Dorchester	Public	CB Dumping	Constr. Material in and around CB. Was cleaned by contractor
52	8/25/09	Metropolitan Ave, Roslindale	Public	CB Dumping	Contractor was directed to cover CB while working around it
53	8/26/09	West Second St, So. Boston	BFD	Hydraulic Release	Waste Solutions had released hydraulic fluid. BFD foamed area / cb. CB not impacted by fluid, CB not connected to outfall
54	9/1/09	Murdock St, Allston	Public	CB Dumping	Checked CB's for oil dumping, none found

Table 3 - 3
Spill/Dumping Response 2009

2009	HAZMAT SPILL & AND LEAKAGE RESPONSE				
	Date	**Street**	**Complainant**	**Type**	**Cause of Incident / Responsible Party**
55	9/17/09	67 Perkins St, JP	Public	Oil release at SDO233	Found heating oil in drain line. LSP involved. Cyn cleaned line from 67 Perkins to SDO233
56	9/21/09	Stadium Way, Brighton	Public	CB Dumping	Found cement material around private cb. Spoke w/ property maint. Directed not to dump
57	9/23/09	772 Centre St, JP	Public	CB Dumping	Washing grease vents in drop inlet. Hire comp for cleaning. Violation letter sent
58	9/23/09	Morrissey Blvd, No. Dorchester	BWSC	Dumping onto rdwy	Washing out wheelbarrow onto rdwy
59	9/24/09	1542 Columbus Rd	Public	CB Dumping	Sawcutting material entering CB. Directed contr. To place fabric w/in CB
60	9/25/09	682 Cummins Hwy	BFD	Fuel odor in drain line	Drain line had fuel odor. BFD / DEP onsite. Onging issue w/ gas staion. BFD, BPD, DEP, ISD involved. Was informed by DEP vapors are not exposive, no need to flush line
61	9/30/09	West Dedham St, So End	BWSC	Constr. Material on RDWY	Directed contr. To clean rdwy before material enters CB
62	10/5/09	14 Coman Rd, Mattapan	BFD	Gasoline Odor in Hse	Gas odor in Hse thru open pipe. Plugged pipe w/ rugs / BFD told owner to hire plumber to fix.
63	11/16/09	Cental St, Dwntwn	BWSC	Dewatering	No Actions
64	11/20/09	71 Paine St, Roslindale	Public	Grease in CB	Ops. Vactored grease from CB, Investigated and will monitor CB
65	12/7/09	58-62 Berkeley, So.end	Public	Water	Using water between 2 building (notfied opps)
66	12/10/09	Rogers Park Av, Allston	Public	Heating oil	Heating oil on ground. Placed spill pads w/in CB
67	12/15/09	Prescott St, E.B.	BFD	Heating oil on rdwy	Heating oil truek spilled material. Did not impact system
68	12/17/09	61 Sullivan St, Charlestown	Public	Cb Dumping	Found no sign of dumping in CB by contractor (tar / shingles)
69	12/21/09	61 Batterymarch	BFD	Heating oil spill	Spill w/in building. Did not impact system
70	12/30/09	800 Washington St, Central	BPD	Antifreeze release from T bus	Antifreeze impacted CB, did not impact main drain. T hired AAI to vactor CB. Job complete

Failure to comply with the Site Cleanliness Ordinance and obtain a Site Cleanliness license may result in fines of up to $1,000 a day. Repeated violations may result in closure of the business. ISD officials report that enforcement is very strict and that non-complying businesses typically achieve compliance within days of being issued a violation notice.

g. Yard Waste/Composting

The Boston Public Works Department provides curbside collection of leaves and grass clippings in the residential sections of the city in the spring and the fall each year. To remind residents of the collection dates, the PWD distributes public service announcements to local radio and television stations. Door hangers are distributed in residential neighborhoods and signs are posted in neighborhood commercial centers. The March/April and November/December 2009 issues of the Commission's *Currents* newsletter included articles promoting use of the collection service. A copy of the newsletter is provided in Appendix A.

h. Pet Waste

Stormwater Monitoring Programs conducted by the Commission have indicated that pet waste is a significant source of bacterial contamination to stormwater. The City's dog fouling regulation, Section 16-1.10A of the Boston City Ordinances, also called the "pooper scooper law," requires dog owners to remove and properly dispose of the waste left by their dog. Penalties under the ordinance are $50.00 for failure to produce a means of removal and $50.00 for failure to pick up the waste. The Animal Control Unit in the Boston Property Management Department is responsible for enforcing the dog fouling ordinance. It is also responsible for following up on reports of vicious dogs, ensuring dogs are properly licensed and leashed, and other animal control issues.

Animal Control officials report that enforcing the pooper scooper law is difficult since the owner and dog must be observed "in the act". Fines have been issued to dog owners in the past for violation of the pooper scooper law, although the exact number was not readily available. Two Animal Control officers are assigned to patrol city parks on a daily, rotating basis to ensure that park visitors with animals are complying with Boston's Animal Control related ordinances.

In 2009, the Commission provided the city's Animal Control Unit with 200 copies of a "Scoop the Poop" flyer to be distributed at rabies clinics hosted by the office. In addition, the Commission included a "Scoop the Poop" leaflet in all June water bills. The leaflet was designed to educate people about the city's dog fouling regulation and to encourage them to clean up after their pets. A copy of the leaflet is provided in Appendix A.

The Commission completed the Pet Waste Management Demonstration Project in 2002. The project was conducted in conjunction with the representative open space monitoring at the Wesley G. Ross Playground in Hyde Park. The purpose of this project was to evaluate whether public education and better pet waste control would result in a measurable difference in bacterial levels in stormwater discharged from the playground.

For the program, park users and nearby residents were educated about the impact of dog waste on stormwater quality in an effort to encourage them to pick up after their pets. Scoop the Poop flyers were distributed to park users and nearby residents. Since the neighborhood near the park has a large Haitian population, the flyer was translated into French Creole and an advertisement in French Creole was placed in a newspaper serving Boston's Haitian population. Copies of the Pooper Scooper flyer were provided to the Animal Control Unit for distribution to residents at local rabies vaccination clinics held throughout the city. The Commission also met with representatives of the Boston Parks Department to encourage them to have larger, more prominent pooper scooper signs in the park and to suggest some other ideas for controlling pet waste. This project is described in more detail in Appendix D.

3.3 DEVELOPMENT AND CONSTRUCTION SITES

a. Site Plan Review and Compliance with Sewer Use Regulations

Under the Stormwater Permit, the Commission must continue to implement its site plan review process and ensure compliance with its regulations. A General Service Application and site plan is required by the Commission for every new water, sewer or drainage connection to the Commission's system. The site plan must be approved by the Commission's Chief Engineer before construction of the pipe(s) may begin. The site plan will not be approved unless it conforms to the Commission's Sewer Use Regulations and its Requirements for Site Plans.

The site plan review process provides an opportunity to review the components of the project and condition the approval on compliance with the Commission's Sewer Use Regulations, Requirements for Site Plans, and other requirements. In 2009, 302 site plans were approved by the Commission's Chief Engineer.

Drain Layers License: Persons installing new building sewers and storm drains, or repairing or maintaining existing pipes must possess a Drain Layers License issued by the Commission. To obtain a Drain Layers License, persons must pass a written test given by the Commission's Engineering Customer Services Division. Test questions are typically drawn from the requirements provided in the Commission's Sewer Use Regulations, including those pertaining to illegal sanitary connections to storm drains, non-stormwater discharges, requirements for new construction and catch basin dumping. Drain Layers Licenses are renewed annually. The Drain Layers Licensing requirement provides the opportunity to educate drain layers in Boston as to the Commission's rules and regulations, including those pertaining to stormwater. One hundred and thirty six (136) new Drain Layers Licenses were issued in 2009, and 376 were renewed.

Inspections of New Connections: Connection of a building sewer to a storm drain is prohibited under the Commission's Sewer Use Regulations and carries a fine of up to $5,000 per day of violation. To ensure proper connection, the Commission requires that all new, repaired or modified service connections be inspected by a Commission inspector before the services are covered over by the contractor. Failure to have the connection inspected before covering it over carries a fine of up to $750 per day under the Commission's Sewer Use Regulations.

As an added measure, new sewer connections must be dye tested by the Commission once construction is completed. Failure to have a new sewer connection dye tested carries a fine of up to $500 per day. The Commission may require that a repaired or modified service connection be dye tested. In 2009, the Commission's Engineering Field Services Division performed 392 GSA related dye tests.

Other requirements contained in the Sewer Use Regulations and Requirements for Site Plans that pertain to development and construction include the following:

On-site Retention of Stormwater: Under the Commission's Site Plan Requirements and Sewer Use Regulations, developers of new projects are required to evaluate the feasibility of retaining stormwater on-site. On-site retainage of stormwater is required whenever site conditions permit as determined by the Commission. On-site retention of stormwater serves to limit peak discharge rates, recharge groundwater, and remove 80 percent of total suspended solids in the flow to the extent feasible. This requirement is consistent with the Department of Environmental Protection's Stormwater Management Policy which establishes standards for stormwater management for development. On site retention has typically been in the form of a dry well.

In 2009, the Commission approved 147 projects that included installation of dry wells. Table 3 – 4 provides the addresses of the devices approved in 2009. Since 1993, when the Commission first started tracking infiltration devices installed pursuant to site plans, 1,158 private development projects have included installation of dry wells.

If a new development or a significant redevelopment project involves a new or modified drainage connection and the project is located in the vicinity of a major waterway, such as Boston Harbor, Charles River, or Neponset River, the Commission may require the developer to direct stormwater discharges to the waterway rather than to the Commission's drainage system.

Controls for New Parking Lots: In order to prevent oil, grease and sediments from discharging to open waterways, the Commission requires that developers install particle separators on all newly constructed storm drains that serve outdoor paved areas of 7,500 square feet in size or greater. The Commission may require particle separators on existing storm drains from existing outdoor parking areas, where appropriate. This requirement has been in place since 1992.

Table 3 - 4
Private Infiltration Devices Installed in 2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06173	36-50	POYDRAS ST	HYDE	12/23/2009
09257	36	BELLE AV	WROX	12/21/2009
09249	723	EAST SECOND ST	SBOS	12/14/2009
09222	244	NEWBURY ST	BBBH	12/10/2009
09201	56	DWIGHT ST	SEND	12/8/2009
09241	342	E ST	SBOS	12/7/2009
09254	56	BERKELEY ST	SEND	12/7/2009
09149	29	NEPONSET FIELD LN	HYDE	12/4/2009
08304	255-257	NORTHAMPTON ST	SEND	12/4/2009
09248	223	WEST SIXTH ST	SBOS	12/4/2009
09236	59	PUTNAM ST	EBOS	11/24/2009
09243	109	NEWBURY ST	BBBH	11/24/2009
05161	216R	MARGINAL ST	EBOS	11/24/2009
09253	235	BUNKER HILL ST	CHAR	11/24/2009
09234		BEACON ST	BBBH	11/24/2009
09157	1272-1300	BOYLSTON ST	FEKE	11/20/2009
08349	91	DRESSER ST	SBOS	11/19/2009
09185	15	UNION ST	CHAR	11/16/2009
09220	60	NORTHERN AV	SBOS	11/16/2009
09226	51-67	STUART ST	CENT	11/13/2009
09229	5, 5A, 5B	MINTON ST	ROXB	11/12/2009
08203	62-68	CUMMINGS RD	ALBR	11/7/2009
09009	189-221	EUSTON PATH	ALBR	11/6/2009
09216	20	MONTMORENCI AV	EBOS	11/6/2009
09217	28	MONTMORENCI AV	EBOS	11/6/2009
09030	456	WEST FOURTH ST	SBOS	11/6/2009
07319	646	BLUE HILL AV	ROXB	11/6/2009
09223	15-17	HILBURN PL	ROSL	11/3/2009
06070	1100	VFW PKWY	WROX	10/30/2009
09113	65R	BOSTON ST	SBOS	10/30/2009
09165	510	HYDE PARK AV	HYDE	10/28/2009
09172	1154-1156	DORCHESTER AV	NDOR	10/28/2009
09208	425	FANEUIL ST	ALBR	10/26/2009
09102	303	COMMONWEALTH AV	BBBH	10/21/2009
09215	55, 57, 59	CIRCUIT ST	ROXB	10/20/2009
09012	26	EXETER ST	BBBH	10/19/2009
08082	28A & 28B	MOUNT VERNON ST	NDOR	10/15/2009
09188	1071	MASSACHUSETTS AV	NDOR	10/13/2009
09203	16	IVORY ST	WROX	10/13/2009
09205	61	CIRCUIT ST	ROXB	10/13/2009
09181	74	FENWOOD RD	JAPL	10/5/2009
09093	164-166	TERRACE ST	ROXB	10/1/2009
08163	770-774	EAST THIRD ST	SBOS	9/23/2009
09129	343	NEWBURY ST	BBBH	9/21/2009
08320	1-9	MALLARD AV	SDOR	9/21/2009
08150	2	PALACE RD	FEKE	9/21/2009
09187	1506	COLUMBIA RD	SBOS	9/21/2009
09122	248	CHESTNUT AV	JAPL	9/21/2009
08058	16A	MEEHAN ST	JAPL	9/17/2009
08199	26	PONTIAC ST	JAPL	9/14/2009

Table 3 - 4
Private Infiltration Devices Installed in 2009

09077	20	SOUTH ST	JAPL	9/14/2009
09142	302	EUSTIS ST	ROXB	9/8/2009
09167	211	NEWBURY ST	BBBH	9/3/2009
07038	10	BOND ST	SEND	9/3/2009
09033	27	TELEGRAPH ST	SBOS	9/2/2009
09022	2400	WASHINGTON ST	ROXB	8/28/2009
09007	1188	DORCHESTER AV	NDOR	8/27/2009
09105	54	FENWAY	FEKE	8/24/2009
09134	349	MARLBOROUGH ST	BBBH	8/19/2009
09118	234-236	NEWBURY ST	BBBH	8/12/2009
09140	60	NEWFIELD ST	WROX	8/11/2009
09100	1137	RIVER ST	BBBH	8/10/2009
09110	404	BEACON ST	BBBH	8/10/2009
07402	892	RIVER ST	HYDE	8/2/2009
09116	21-27	ANTWERP ST	ALBR	7/27/2009
09091	2730	WASHINGTON ST	ROXB	7/24/2009
09094	2-34	FIDELIS WY	ALBR	7/24/2009
08215	192	WASHINGTON ST	SDOR	7/22/2009
08120	12	UNION PARK	SEND	7/21/2009
09135	56	BELLE AV	WROX	7/20/2009
09123	372	RUGGLES ST	FEKE	7/19/2009
09019	12	SPRING ST	WROX	7/19/2009
06055	43, 45	MONTEBELLO RD	ROXB	7/19/2009
09087	555	COLUMBUS AV	SEND	7/16/2009
08292	171-173	WEST FOURTH ST	SBOS	7/16/2009
09073	70	HICHBORN ST	ALBR	7/15/2009
09086	1230	VFW PKWY	WROX	7/14/2009
09059	276-278	NEWBURY ST	BBBH	7/7/2009
08294	207	MARKET ST	ALBR	7/6/2009
09103	28-30	UNION PARK	SEND	6/29/2009
09037	238	SAINT BOTOLPH ST	FEKE	6/24/2009
09108	433	SHAWMUT AV	SEND	6/22/2009
09107	4600	WASHINGTON ST	ROSL	6/22/2009
09098	88-90	BREMEN ST	EBOS	6/19/2009
09089	66	FENWAY	FEKE	6/17/2009
08347	1415	HYDE PARK AV	HYDE	6/11/2009
08291	39	UNION PARK	SEND	6/8/2009
09053	650	DUDLEY ST	NDOR	6/8/2009
07346	2	WOODWORTH ST	SDOR	6/1/2009
08296	655-659	TREMONT ST	SEND	6/1/2009
08246	150	CHESTNUT HILL AV	ALBR	6/1/2009
08332	7	HAVILAND ST	FEKE	5/30/2009
08065	27-31	HEMENWAY ST	FEKE	5/26/2009
09071	44	BRADFORD ST	SEND	5/22/2009
08218	1135	MORTON ST	MATP	5/20/2009
08211	3-5, 7-9	MORSE ST	ROXB	5/19/2009
09068	2	I ST	SBOS	5/15/2009
08212	78-84	STOUGHTON ST	NDOR	5/14/2009
08207	3294-3304	WASHINGTON ST	ROXB	5/14/2009
08208	3316-3322	WASHINGTON ST	ROXB	5/14/2009
08209	9-15	WALK HILL ST	MATP	5/14/2009
08206	48-56	SCHOOL ST	ROXB	5/13/2009

Table 3 - 4
Private Infiltration Devices Installed in 2009

09060	177	NEWBURY ST	BBBH	5/11/2009
08273	111-115	NEWBURY ST	BBBH	5/8/2009
09070	125-127	BROOKS ST	ALBR	5/4/2009
09041	38-40-42	UPTON ST	SEND	5/4/2009
09064	11	PETER PARLEY RD	ROXB	4/30/2009
08192	82-84	ALLEGHANY ST	JAPL	4/30/2009
09079	1-3	CHARLES RIVER SQ	BBBH	4/30/2009
09042	39	FAIRFIELD ST	BBBH	4/29/2009
09055	92	SAINT BOTOLPH ST	BBBH	4/28/2009
09054	172	GREEN ST	JAPL	4/22/2009
07197	788	EAST BROADWAY	SBOS	4/21/2009
09067	106	BOSTON ST	SBOS	4/10/2009
03146	144	WORDSWORTH ST	EBOS	4/10/2009
09049	1090	BOYLSTON PL	CENT	4/8/2009
09066	8	WENDELLER ST	SBOS	4/8/2009
09035	26	SAINT ALBANS RD	JAPL	4/8/2009
09039	28	SAINT ALBANS RD	JAPL	4/7/2009
09056	190	BEACON ST	ALBR	4/2/2009
09047	12	CONWAY ST	ROSL	4/1/2009
08248	2-6	BEECHLAND ST	ROSL	3/31/2009
09051	28	ARLINGTON ST	HYDE	3/30/2009
09017	1150	SARATOGA ST	EBOS	3/25/2009
08357	85	REGENT ST	ROXB	3/23/2009
09005	625	HUNTINGTON AV	FEKE	3/20/2009
06251	7	COMMONWEALTH AV	ALBR	3/20/2009
09044	72	ALLEGHANY ST	JAPL	3/6/2009
08352	950	METROPOLITAN AV	HYDE	3/6/2009
09038	424-430	WEST FOURTH ST	SBOS	2/25/2009
09032	37-39	PERTHSHIRE RD	ALBR	2/22/2009
09015	36-38	RUSSELL ST	CHAR	2/18/2009
08187	38-48	DAMRELL ST	SBOS	2/11/2009
09018	31.5	DWIGHT ST	SEND	2/10/2009
09020	86-90	LITCHFIELD ST	ALBR	2/9/2009
09027	26-30	DORR ST	ROXB	2/9/2009
09010	304	BEACON ST	BBBH	2/9/2009
09002	887	HARRISON AV	SEND	2/5/2009
08029	102-104	DENT ST	WROX	2/1/2009
09013	263	NEWBURY ST	BBBH	1/28/2009
08289	45-47	COMMONWEALTH AV	BBBH	1/13/2009
08307	160-162	RIVERWAY	FEKE	1/8/2009
08184	750	DORCHESTER AV	NDOR	1/8/2009
08326	815	ALBANY ST	SEND	1/7/2009
08361	152	WOOD AV	HYDE	1/6/2009
08355	228	WEST CANTON ST	BBBH	1/6/2009
08262	188-196	FOSTER ST	ALBR	1/6/2009

Parking lot particle separators are typically located on private property; therefore, their maintenance is the responsibility of the property owner. Design criteria for particle separators are set forth in the Commission's *Guidelines for Developers for the Installation, Operation and Maintenance of Grit and Oil Separators*, a copy of which is included in the Commission's Requirements for Site Plans.

In 2009, the Commission approved installation of particle separators at 23 locations. Since 2001, when the Commission first started tracking particle separators installed pursuant to site plans, 202 private development projects have included installation of particle separators. Table 3 – 5 lists the addresses of the particle separators approved since 2001.

Drainage Discharge Permits: The Commission requires a Drainage Discharge Permit for all non-stormwater discharges to its drainage system, including construction site dewatering, permanent subsurface drainage, non-contact cooling water, non-contact industrial process water, and waters associated with hydrological testing, groundwater treatment/remediation, and removal and installation of an underground storage tank. The Commission may deny or condition a dewatering permit to prevent contaminated drainage from entering the sewer or drainage system. Failure to obtain a Drainage Discharge Permit carries a fine of up to $1,000 a day under the Commission's Sewer Use Regulations. In 2009, the Commission issued 7 Drainage Discharge Permits for discharges to storm drains.

Infiltration/Inflow Control: Newly constructed and substantially renovated buildings must be constructed so as to minimize inflow and infiltration to the Commission's wastewater system. Stormwater, including roof runoff, must be kept separate from sanitary sewage at all times, and the connection of a building storm drain to a sanitary sewer is prohibited.

For development projects requiring review under Massachusetts Environmental Policy Act (MEPA) and that add a significant amount of new wastewater flow to the sewer system, DEP currently requires a reduction of 4 units of infiltration or inflow for each new unit of wastewater added. The Commission supports the DEP in this requirement. Developers of large projects can propose their own I/I reduction measures and submit them for review and approval by the Commission; they can select I/I reduction projects from a database being developed by the Commission; or they can pay a fee to the Commission in lieu of implementing an I/I reduction project.

Erosion and Sedimentation Control: Under the Sewer Use Regulations, anyone seeking to construct, repair or modify a sewer or storm drain service connection to the Commission's system, or to discharge under a Drainage Discharge Permit, may be required to prepare and implement an Erosion and Sedimentation Control Plan to prevent the introduction of sediments into the Commission's sewers and storm drains.

Table 3 - 5
Privately Installed Particles Separators
2009

PROJECT	STREET N	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06173	36-50	POYDRAS ST	HYDE	12/23/2009
06070	1100	VFW PKWY	WROX	10/30/2009
09188	1071	MASSACHUSETTS AV	NDOR	10/13/2009
09093	164-166	TERRACE ST	ROXB	10/1/2009
08150	2	PALACE RD	FEKE	9/21/2009
09077	20	SOUTH ST	JAPL	9/14/2009
09022	2400	WASHINGTON ST	ROXB	8/28/2009
07402	892	RIVER ST	HYDE	8/2/2009
09091	2730	WASHINGTON ST	ROXB	7/24/2009
09123	372	RUGGLES ST	FEKE	7/19/2009
09086	1230	VFW PKWY	WROX	7/14/2009
08294	207	MARKET ST	ALBR	7/6/2009
08347	1415	HYDE PARK AV	HYDE	6/11/2009
09053	650	DUDLEY ST	NDOR	6/8/2009
08218	1135	MORTON ST	MATP	5/20/2009
03146	144	WORDSWORTH ST	EBOS	4/10/2009
08248	2-6	BEECHLAND ST	ROSL	3/31/2009
09017	1150	SARATOGA ST	EBOS	3/25/2009
09044	72	ALLEGHANY ST	JAPL	3/6/2009
09032	37-39	PERTHSHIRE RD	ALBR	2/22/2009
09027	26-30	DORR ST	ROXB	2/9/2009
08184	750	DORCHESTER AV	NDOR	1/8/2009
08262	188-196	FOSTER ST	ALBR	1/6/2009

Fuel Dispensing Areas: Under the Commission's Requirements for Site Plans, stormwater runoff from fuel dispensing areas not covered by a canopy or other type of roof or enclosure must discharge through a particle separator or an approved oil trap before discharging to the Commission's storm drainage system or receiving waters.

Catch Basin Castings: Commission contractors are required to install metal castings with a "Don't Dump" message on sidewalks near new or reconstructed catch basins. The castings are provided to the contractors by the Commission at no cost. The Commission requires that private developers install permanent "Don't Dump" catch basin castings next to any new catch basin installed as part of their projects. The developers, as well as other parties interested in obtaining the castings may purchase them from the Commission's vendor. In 2009, the Commission issued 935 catch basin castings to contractors and other parties. Of those issued, 502 were for Boston Harbor, 251 for the Charles River and 182 were for the Neponset River.

b. NPDES Stormwater Permits for Construction

Since March, 2003, developers of projects involving disturbances of land of one acre or more have been required to obtain an NPDES General Permit for Construction from the Environmental Protection Agency and the Massachusetts Department of Environmental Protection. It is the responsibility of the owner of the development or of the construction contractor to obtain the necessary NPDES General Permit for Construction. Since 2003, the Commission has been informing developers and construction contractors of this requirement through comment letters submitted to the MEPA Unit and the BRA (described below) for Environmental Impact Reports.

In 2004, the Commission prepared a brochure designed to educate construction site operators about the permit requirement. Copies of the brochure were provided to the city's Environment Department, Conservation Commission, Inspectional Services and the BRA for distribution to developers. A copy of the brochure is provided in Appendix A.

c. Development/Redevelopment and Coordination with Municipal Agencies

The Commission's NPDES Stormwater Permit requires the Commission to "assist, coordinate, and cooperate" with city departments and agencies to ensure that development projects within Boston are conditioned on due consideration of stormwater quality impacts, that they conform to applicable state and local stormwater requirements, and that negative impacts to stormwater quality during the time construction is underway are prevented.

The Commission reviews environmental impact reports and notices of project changes for projects in Boston submitted to the Massachusetts Environmental Policy Act (MEPA) Unit and the Boston Redevelopment Authority (BRA). Comments were submitted to the

MEPA Unit, BRA and/or other parties for fifteen (15) projects in 2009. In most cases, copies of the letters were also sent to the Boston Environment Department.

Letters for three (3) projects contained comments regarding the Commission requirements for particle separators. Letters for thirteen (13) projects contained comments about the Commission's requirement for retaining stormwater on site. Letters for thirteen (13) projects contained comments regarding the requirement for Stormwater Management Plans. Eleven (11) letters contained comments regarding the requirement for 4:1 I/I reduction. If appropriate, the letters informed the proponent that a Drainage Discharge Permit may be required for any temporary or permanent non-stormwater discharge to the drainage system.

It is the responsibility of the owner of the development or of the construction contractor to obtain the necessary NPDES General Permit for Construction. BWSC informs them of this requirement in comments to MEPA/BRA as appropriate.

In 2002, Commission staff met with representatives of BRA and the Boston Conservation Commission to discuss the NPDES Stormwater Permit requirements, DEPs Stormwater Standards, and the Commission's requirements for site plans. In 2003, the Commission met with representative of Boston's Inspectional Services Department, which is the department that issues building permits. The primary purpose of these meetings was to identify ways the agencies could work cooperatively to ensure that state and federal Stormwater requirements are satisfied. This effort is ongoing.

3.4 ROADWAYS

As contained in its enabling act, the Commission's authority is limited to the operation and maintenance of the water distribution system and the wastewater collection and stormwater drainage systems which serve the City of Boston. The Commission's jurisdiction does not extend to the operation and maintenance of roadways. However, through informal communications with officials from agencies having the responsibility for the management of city roadways, the Boston Public Works Department (PWD), the state Department of Conservation and Recreation (DCR), and the Massachusetts Highway Department, (MHD) the Commission has learned that agency officials are well aware of the environmental issues relating to roadway management, specifically the use of roadway deicing chemicals and the benefits of frequent street sweeping.

a. Snow Removal and Road Deicing Practices

Snow plowing and road deicing of most of the public roads in Boston are the responsibility of the PWD. PWD officials have emphasized that public safety is their primary concern in determining how much sand and salt is applied to roadways and that weather conditions dictate application levels; if the roads are icy and snow covered, sand and salt must be applied to produce a clear and dry roadway surface. The public safety issue is balanced by the fact that the more deicing chemicals are used, the greater the cost

to the City. Therefore, to keep costs at a minimum, the PWD uses only the amount of chemical needed to achieve the job.

The PWD performs some of the snow removal operations in the City and also has snow removal contracts. Snow is plowed to the side of the streets, but is not typically removed. A sodium chloride salt/sand mixture is used as a deicing agent, and application rates vary widely based on temperature and precipitation. Contractors use the City's supply of salt and sand during deicing operations.

b. Street Cleaning

Street sweeping of city owned streets is conducted by the PWD. According to the PWD, the City has two programs for street sweeping: Posted Street Cleaning and Non-posted Street Cleaning. All non-posted streets are cleaned once a week or more if necessary. The Posted Sweeping Program is separated between a Night Program and a Daily Program. Sweepers also clean up before and after special events, such as parades, road races and neighborhood festivals.

The Night Sweeping Program includes an area from Massachusetts Avenue to the Waterfront that is swept on a nightly basis year round. The Night Sweeping Program also covers the City's major arterial routes throughout the City, which are swept once a week at night year round.

The Daily Street Sweeping Program typically operates from April 1st through November 30th. However, weather and budget conditions permitting, the program may begin earlier in the season and extend later into the fall. Each side of a posted city street on the Daily Street Cleaning Program is cleaned once every other week. Additional street sweepers may be contracted and city sweepers run more frequently during the fall leaf season.

Parking bans (signs) posted on streets serve to educate the public and to have vehicles removed on certain days so sweeping can be thorough. The parking bans are enforced by the Boston Transportation Department. If cars are not removed on designated days, owners can be fined. The fine for not removing cars on the designated days increased from $25 to $40 in 2005.

Contractors are responsible for providing their own equipment and for disposal of the collected material. Under a new street sweeping contract awarded in July 2009, PWD required vacuum type sweepers that have dust control systems, and do not require water to operate. Because these types of sweepers don't require water, they can be operated year round, even in freezing conditions. The vacuum sweepers are believed to be more efficient at collecting smaller grit particles and dust. The new sweepers have saved the city thousands of gallons in water usage, and are in compliance with DEP regulations.

The PWD also has several small broom sweepers used to sweep small alleys and sidewalks. These sweepers are typically assigned to the more densely developed parts of the City, such as Chinatown, Downtown Crossing, and the North End.

The composition of the material swept up varies seasonally with sand and sediments from winter deicing activities being most evident in the spring, leaf litter during the fall months, and light litter predominating during the summer.

Roads maintained by the DCR, such as the VFW Parkway, Storrow Drive, the Riverway, and the Fenway are served primarily by separate storm drains, which are owned and maintained by the DCR. DCR drainage systems in Boston are subject to the EPA's Stormwater Phase 2 program. DCR's stormwater management program include "good housekeeping" measures, such as street sweeping of parkways, cleaning street drains and associated drainage systems and using control measures to protect sensitive receiving waters. The list of DCR facilities and descriptions of the program elements are described in the DCR Storm Water Management Plan available on the web at http://www.mass.gov/dcr/stewardship/stormwater/index.htm.

3.5 FLOOD CONTROL PROJECTS

Receiving water and stormwater quality impacts are considered whenever the Commission undertakes capital improvements to the drainage system, including those relating to flood control. For each project, consideration is given to re-designing or retrofitting the drainage system to provide additional pollutant removal capability.

a. Arnold Arboretum Drain Replacement

This project involved cleaning of Commission drains, installation of new and replacement drains, and construction of a particle separator in the Arnold Arboretum. Under this project, an existing 12-inch drain was replaced with a 24-inch diameter pipeline following generally the same alignment until it reaches Valley Road, within the southern portion of the Arnold Arboretum. At that point, the existing pipeline remains in place and the replacement pipe continues in a southeasterly direction under existing pavement until it connects to a brick culvert.

The modification discontinued much of the stormwater discharged into a small tributary within the Arboretum and relocated the discharge point to an outlet within the existing granite and brick arch culvert carrying Bussey Brook underneath Hemlock Hill Road. The relocation of the discharge point to Bussey Brook prevents erosion of the tributary that would result from the expected flow of the upgraded stormwater system.

The particle separator, which is located was installed to provide treatment of the stormwater prior to discharge to Bussey Brook. The particle separator was designed to remove an estimated 82 percent of total suspended solids from the stormwater passing through the replacement pipe.

b. Arnold Arboretum Flood Control Project

In 2001/2002, in an effort to relieve flooding issues in a nearby Roslindale neighborhood, the Commission designed and installed a flood control BMP in the Arboretum, just off South Street. The system was designed to take advantage of natural topography and contours in the land so as to retain stormwater within the open space. The system also serves to improve stormwater quality, since the stormwater retention time allows impurities in the stormwater to settle out.

c. Muddy River Flood Control Program

This project involves a multidisciplinary approach to improving the Muddy River watershed and the adjacent parklands, referred to as the Emerald Necklace located in Boston, Brookline and Newton. The project, which is managed by the Boston Parks and Recreation Department and the Town of Brookline, involves measures to increase the hydraulic capacity of the river and implementation of stormwater Best Management Practices in the watershed to improve stormwater and receiving water quality.

Between 2000 and 2002, the Commission provided $1.5 million in funding to support the project. Dredging of the Charlesgate portion of the Muddy River, was completed in 2002. Also in 2002, the Commission reviewed the Draft Environmental Impact Report and submitted comments to MEPA in April. The Commission reviewed the Final Environmental Impact Report in April 2003 and no comments were submitted.

The Commission continues to advise on best management practices and stormwater management for this program by participating in meetings held with the Boston Parks and Recreation Department, Town of Brookline representatives, consultants responsible for implementing the program and the Muddy River Citizens Advisory Committee.

3.6 PESTICIDE, HERBICIDE AND FERTILIZER APPLICATION

Under the Stormwater Permit, the Commission is required to cooperate with municipal agencies to evaluate existing measures to reduce the discharge of pollutants related to the application of pesticides, herbicides and fertilizers (PHFs) applied by municipal or public agencies. The Commission is also required to evaluate the necessity to implement controls to reduce the discharge of pollutants related to the application and distribution of PHFs by commercial and wholesale distributors and applicators. The Commission performed evaluations of existing programs and data in 2001, and reported the results in the 2001 Stormwater Management Report. The findings are summarized here.

Additional monitoring and controls for PHF use by municipal agencies and their contractors and for commercial and wholesale distributors does not appear to be warranted at this time. This determination was made based on discussions with the Boston Parks Department, the Department of Conservation and Recreation and an

evaluation of stormwater monitoring data already collected by the Commission for its stormwater monitoring programs.

Boston Parks and Recreation Department and the Department of Conservation and Recreation reported that PHF use is kept to a minimum due to environmental reasons as well as to keep costs down. That the Boston Parks Department uses little or no fertilizers is further substantiated by the results of wet weather monitoring performed in the Wesley G. Ross Playground in Hyde Park described below.

Testing of stormwater for pesticides, other organic compounds, and a number of other water quality parameters was conducted during preparation of the Commission's NPDES Stormwater Permit Application in 1992. Although several pesticides were detected in some of the samples at levels exceeding EPA water quality criteria for acute exposure, there was no consistent pattern in the frequency or location of their occurrence. All of the compounds tested in the 1992 program are EPA Level I pesticides, and are no longer in domestic use in the United States (nor were they in general use at the time of the Application). It is possible that the data were showing residual effect of past use of these pesticides. However, it is unlikely that these pesticides are still being used today and that their impact could be minimized through implementation of control measures.

Since the preparation of the Permit Application, the Commission has completed four more stormwater monitoring programs in a low-density residential area (LDR), a commercial, a high-density residential area, and an open space area. The sample analyses for these programs did not include specific pesticide or herbicide compounds. However, nutrients that would be indicative of seasonal fertilizer usage were tested. The data generated by these programs generally demonstrated a high degree of variability in nutrient concentrations, but no significant differences either between the land use types or on a seasonal basis were indicated, other than increases in parameters associated with winter deicing.

The 84-acre area monitored for the low-density residential area program is comprised primarily of single and two-family houses, plus a six-acre Boston city-owned and operated park. Based on the monitoring data collected for this program, the area does not appear to be influenced by fertilizer application either by the parks personnel or by private property owners in the neighborhood during the spring and summer months. It is considered unlikely that sampling in more urbanized areas of the city would demonstrate more of an influence.

The area monitored for the open space monitoring consists of a 12-acre, Boston city owned park and playground operated by the Boston Parks Department. Most of the playground is grassed or similarly pervious area, although there are also tennis and basketball courts and baseball fields. The results of nutrient sampling in the playground indicated that the median concentrations of the various forms of nitrogen and phosphorus measured were generally comparable to those measured in the other drainage areas monitored by the Commission, and the nitrogen parameters were lower than the median

NURP concentration. Therefore, it was concluded that any fertilizer use in the park is not evidenced in runoff water quality.

Analysis of nutrients (e.g. total nitrogen, ammonia nitrogen, nitrate/nitrite, total phosphorus, and orthophosphate) was included in the NPDES Stormwater Monitoring program in the three representative drainage areas. In general, the median nutrient concentrations measured in the drainage areas evaluated were comparable to those reported in the National Stormwater Quality Database.

3.7 PUBLIC EDUCATION

a. Billing Inserts

Several times a year, in the monthly water and sewer bill, the Commission provides customers with an informational newsletter called *Currents*. The newsletter is aimed at providing customers with useful information concerning the Commission's programs and activities. Issues of *Currents* announce upcoming events such as the Commission's community outreach meetings and city sponsored events such as household hazardous waste, oil and paint collections. In addition, articles feature tips on pollution prevention, and proper disposal of used motor oil, antifreeze, household hazardous materials, yard debris, pet waste and other wastes.

In 2009, the March/April and November/December issues of *Currents* promoted utilization of the City's curbside leaf and yard waste collection service. The September/October issue promoted the City's fall household hazardous waste collection event. Copies of the *Currents* newsletter are provided in Appendix A.

Also in 2009, Commission distributed leaflets in water bills. The one distributed in the February water bills was designed to inform residents that dumping to catch basins is illegal, and to encourage them to report illegal dumping to catch basins. The leaflet distributed in May was to inform residents about the City's spring Household Hazardous Waste Collection event. The June leaflet was designed to encourage residents to pick up after their dogs. Copies of the leaflets are provided in Appendix A.

b. Commission Web Site

In 2009, the Commission redesigned its website to better serve its customers. Located at www.bwsc.org, the website provides a variety of information concerning the Commission's programs, activities, and requirements. It provides the text of the Commission's Sewer Use Regulations, the Site Plan Requirements and information pertaining to the Commission's stormwater management and pollution prevention activities.

c. Catch Basin Stenciling and Castings

Public awareness regarding the connection between catch basins and water quality is promoted through the Commission's Catch Basin Stenciling Program. Through the Catch Basin Stenciling, volunteers are mobilized to stencil "Don't Dump" messages next to catch basins. Upon request, the Commission coordinates stenciling projects and provides instruction, stencils, paint, rollers, brooms, informational leaflets, and safety equipment.

The Catch Basin Stenciling Program is promoted through the Commission's web site and billing inserts and through press releases, community events and outreach meetings, presentations to public schools, and through local watershed associations.

- In June, students from Warren-Prescott School in Charlestown teamed up with students from Harvard University to stencil the "Don't Dump" message on catch basins in Charlestown.

- In August, in collaboration with Northeastern University's new student orientation program, the "Don't Dump" message was stenciled next to catch basins in the Back Bay and Dorchester.

- In October, the Commission's community outreach efforts focused on pollution prevention. Students from Northeastern University and a group from the Warren Prescott School in Charlestown participated in storm drain stenciling. Under this effort, catch basins in Roxbury, South End, Fenway and Charlestown were painted with the "Don't Dump" message.

- In November, a group of about 100 students from the sixth, seventh and eighth grades, supervised by leaders from City Year, stenciled catch basins in the Back Bay.

- Also in November, 12 participants from the American Society of Civil Engineers, Northeastern University Chapter, painted the "Don't Dump" message on catch basins near the Boston Harbor waterfront. The number of catch basins stenciled were as follows:

  Aquarium: 27
  World Trade Center: 12
  Children's Museum: 56

Commission contractors are required to install metal castings with a "Don't Dump" message on sidewalks near new or reconstructed catch basins. The castings are provided to the contractors by the Commission at no cost. The Commission requires that private developers install permanent "Don't Dump" catch basin castings next to any new catch basin installed as part of their projects. The developers, as well as other parties interested in obtaining the castings may purchase them from the Commission's vendor. The Commission issued 935 catch basin castings to contractors and other parties in 2009. Of

those issued, 502 were for Boston Harbor, 252 for the Charles River and 182 were for the Neponset River.

d. "Scoop the Poop" Education

The Commission's June water bills included a leaflet designed to educate residents about the City's pooper scooper law, and to encourage pet owners to clean up after their pets. Also in 2009, the Commission provided 200 copies of the leaflet to the city's Animal Control Unit to distribute at local rabies clinics throughout the year. A copy of the leaflet is provided in Appendix A.

As part of the Pet Waste Management Demonstration Project completed in 2002, park users and nearby residents were educated about the impact of dog waste on stormwater quality in an effort to encourage them to pick up after their pets. Scoop the Poop flyers were distributed to park users and nearby residents. Since the neighborhood near the park has a large Haitian population, the flyer was translated into French Creole and an advertisement in French Creole was placed in a newspaper serving Boston's Haitian population. Copies of the Pooper Scooper flyer were provided to the Animal Control Unit for distribution to residents at local rabies vaccination clinics held throughout the city.

The Commission also met with representatives of the Boston Parks Department in 2002 to encourage them to have larger, more prominent pooper scooper signs in the park and to suggest some other ideas for controlling pet waste. This project is described in more detail in Appendix D, Pet Waste Demonstration Project.

e. Doorhangers

The Commission's Sewer Use Regulations prohibit the dumping of any material into a catch basin, including any solid waste, construction debris, paint or painting product, antifreeze, hazardous waste, or oil. In many cases, by the time the Commission's investigation crew reaches the location of the reported dumping incident, the violator is already gone or cannot be confirmed. To address this issue, the Commission has produced a door hanger which is distributed in neighborhoods where incidents of illegal dumping have occurred. The door hanger conveys the "Don't Dump" message and informs people of the prohibition on illegal dumping. It also serves to alert people to keep a look out for violators and provides a phone number for reporting illegal dumpers. An example of the doorhanger is provided in Appendix A.

f. Stormwater Outfall Signs

Although not required under the Stormwater Permit, the Commission posted permanent identification signs on or near about 190 of its storm drain outfalls in 2000 and 2001. In some cases it was not possible to post a sign near the outfall due to the inaccessibility of the outfall or the lack of any nearby structures upon which to put the sign. The blue-colored signs state that the drain is owned by the Commission, and the stormwater outfall

number is provided. The purpose of the signs is to aid in the identification of the outfalls by field crews and to facilitate reporting and tracking of problems, such as dry weather discharges and indication of illegal sanitary connections.

In 2010 the Commission will be inspecting of all its storm drain outfalls. Inspectors will note where new signs are needed.

g. Stormwater Management Brochure for Small Commercial Businesses

In 2001, the Commission prepared a brochure on stormwater management for small commercial businesses. A copy of the brochure is provided in the pocket at the end of this section. The brochure is intended to increase awareness of the relationship between improper disposal of pollutants and contamination of receiving waters. It describes specific measures that can be taken by business owners and their employees to prevent the discharge of pollutants to the drainage system.

Notice of the brochure's availability and copies of the brochure were distributed to various business groups, organizations and agencies in 2002 including the city's 21 Main Streets Program offices, the Clean Charles Coalition, the Neponset River Watershed Association, the Charles River Watershed Association, the Mystic River Watershed Association, The Boston Harbor Association, the Dorchester Board of Trade, and the City's Environment Department. A copy of the brochure is provided in Appendix A.

In 2006, 500 copies of the brochure were provided to the Boston Environment for distribution from their office and at events attended by the staff.

3.8 SUPPORT FOR WATERSHED AND ENVIRONMENTAL AGENCIES AND ORGANIZATIONS

Each year the Commission provides funding to Watershed Associations and Environmental Organizations to support their water quality monitoring programs and public education efforts. The Charles River Watershed Association, Neponset River Watershed Association, and the Boston Harbor Association each received $10,000 from the Commission in 2009.

Support for the EPA, and DEP's watershed programs is provided on an ongoing basis by the Commission. As needed, the Commission shares monitoring and rain gauge data, investigates reports of illegal connections or other non-stormwater discharges to waterways, participates in planning meetings, and provides technical advice.

4.0 REPRESENTATIVE AND RECEIVING WATER MONITORING, AND BMP DEMONSTRATION PROGRAMS

4.1 CURRENT STATUS OF MONITORING PROGRAMS

Under the permit, the Commission was required to monitor stormwater quality in areas representative of different land uses, and receiving water quality during wet weather. The Commission was also required to implement a demonstration program designed to evaluate the effectiveness of a non-structural stormwater Best Management Practice, and perform wet and dry weather screening of major storm drain outfalls.

This section provides a summary of these programs. More comprehensive reports regarding the representative land use monitoring, receiving water monitoring and BMP Evaluation are provided in Appendices B through D.

The Commission completed all of the required representative and receiving water monitoring within the first five years of the permit. In 2004, because there were funds remaining in the monitoring program contract, the Commission extended the contract duration, and an additional round of receiving water monitoring was performed in 2005. In 2006, the Commission extended the monitoring program contract again, and added $10,039 to the contract, to allow for one more year of receiving water monitoring. In total, the Commission completed six years of receiving water monitoring.

In 2007, anticipating that the Commission's permit would soon be re-issued by EPA/DEP, the Commission sent a letter to EPA/DEP in 2007, stating that it had fulfilled all of the monitoring requirements of the existing permit, and there were no immediate plans to continue representative and receiving water monitoring. Since there was no response from EPA or DEP regarding the letter, it was concluded that this was acceptable to EPA and DEP.

4.2 NPDES MONITORING ACCOMPLISHMENTS TO DATE

The representative and receiving water monitoring programs were completed prior to 2008, as were the BMP demonstration programs. Brief summaries of the programs are provided in this section and complete descriptions of the programs, along with the data collected, are provided in Appendices B through D. A map showing the locations of the representative and receiving water sampling sites is provided at the end of this section.

Table 4 – 1 presents the schedule under which the representative stormwater monitoring, receiving water monitoring, and BMP demonstration programs were completed. They are summarized as follows:

- Between 2001 and 2004, completed representative monitoring in a high density residential area, an open space area, and a mixed use area. Representative monitoring in a low-density residential and a commercial area were completed prior to 2001, and the data is provided in separate reports.

- Performed wet and dry weather water quality sampling at five (5) receiving water locations in 2001, 2002, 2003, 2004, 2005 and 2006. Since receiving water quality monitoring could not be performed by the Commission in 2000 as required under the permit, an additional round (three storms) of wet weather receiving water quality monitoring was performed in 2004.

- Evaluated the effectiveness of a non-structural stormwater Best Management Practice (the Pet Waste Management Demonstration Project).

- Although not required under the Permit, completed the Catch Basin Effectiveness Demonstration Project.

Table 4 – 1 Monitoring Program Implementation Schedule

	High Density Residential	Open Space	Mixed Use	Catch Basin Effectiveness	Pet Waste Management	Receiving Waters
Spring 2001	3 Storms			3 Storms		2 Storms/1 Dry
Fall 2001		1 Storm			Baseline Monitoring	1 Storm
Spring 2002	3 Storms	2 Storms		3 Storms	BMP Program Implementation	3 Storms/1 Dry
Fall 2002		3 Storms		Sediment Measurements	Post BMP Monitoring	
Spring 2003			3 Storms	Sediment Measurements		2 Storms/1 Dry
Fall 2003				Sediment Measurements		1 Storm
Spring 2004			3 Storms	Sediment Measurements		3 Storms/1 Dry
Fall 2004						3 Storms
2005						3 Storms/1 Dry
2006						3 Storms/1 Dry

4.3 REPRESENTATIVE STORMWATER MONITORING

Under the Commission's original SQMP submitted to EPA, the Commission proposed to monitor stormwater quality in drainage areas representative of high-density residential, transportation and industrial land uses. Each of these areas would be monitored during three storm events per year, for two years. Since the Commission had just recently completed one full year of monitoring in a low-density residential area, and one full year of monitoring in a commercial area, the Commission proposed to monitor stormwater in these land use areas during three storm events for one year only. The Commission's Stormwater Quality Monitoring Plan (SQMP) was approved by EPA in February 2000.

Subsequent to submitting the SQMP, the Commission re-evaluated data collected from the previously completed low-density residential and commercial area stormwater monitoring programs. The Residential Stormwater Monitoring Program (West Roxbury) conducted between April, 1997 and June 1997, captured 11 storm events and the Commercial Area Stormwater Monitoring Program (Dorchester Lower Mills) conducted between April 1999 and March 2000 captured 13 storm events. The Commission concluded that these programs had produced sufficient data to evaluate the quality of stormwater discharges from those land use types. Therefore, the Commission modified its monitoring program in 2001 to included monitoring of only the high density, open space and mixed land use types. The modification was reported to EPA/DEP in the Commission's annual Stormwater Management Report for 2000. In a memorandum faxed to the Commission by EPA on April 29, 2003, it was stated that the proposed revisions to the representative monitoring program were "acceptable to EPA". A letter from DEP to the Commission dated May 13, 1003, also stated that the proposed modifications were "reasonable and appropriate".

At the time the Residential and Commercial Area stormwater monitoring programs were being evaluated, the Commission also performed an evaluation of land uses in the areas of Boston served by separated storm drains. Based on Mass GIS data and information provided in the Commission's Geographic Information System, it was determined that transportation and industrial land uses accounted for less than eight (8) percent of the land use in the separated areas of Boston. Major land use types in the areas of the city served by separate storm drains were residential (60 percent), followed by open space or water (13 percent) and commercial/institutional (19 percent). The evaluation further indicated that the most of the drainage areas in Boston were comprised of a mixture of land uses, as opposed to any single land use type. In response to this finding, the Commission modified its NPDES Stormwater Monitoring Program in 2001, to include monitoring of open space and mixed use areas, as opposed to transportation and industrial land use areas. The Commission reported the modification to the EPA/DEP in the annual Stormwater Management Report for 2000. In a memorandum faxed by EPA to the Commission on April 29, 2003, EPA stated that the proposed modifications to the representative monitoring program were "reasonable and appropriate". DEP also sent a letter to the Commission dated May 13, 2003, stating that the modifications were "reasonable and appropriate".

Copies of the final reports for the Residential Stormwater Monitoring Program (RSM) and the Commercial Area Stormwater Monitoring (CSM) were submitted to the EPA/DEP at the conclusion of the programs. The reports are also included on the CD provided with this report. A summary of conclusions made based on the representative stormwater monitoring program is provided below. A more detailed discussion of the program is provided in Appendix B.

Based on the data generated under the representative stormwater monitoring programs, the following general conclusions can be made:

- Bacterial levels in stormwater consistently exceed applicable water quality standards, particularly those based on fecal coliform concentration, even in areas known to have no illegal sanitary connections. Levels measured in the Commission's NPDES monitoring programs are very comparable to those reported in the NSQD database. Ambient temperature is clearly a factor impacting bacterial concentrations but, due to the characteristically high degree of variability in bacterial data, it is difficult to assess other trends. It is clear that these bacterial parameters are not reliable indicators of sewage contamination.

- Levels of copper and zinc in runoff from the Boston area consistently exceed applicable water quality criteria, particularly in dissolved form. The fact that the metals occur primarily in dissolved form, suggests that conventional BMPs aimed at solids control will be ineffective at addressing metals toxicity. Data from the mixed use area indicate higher metals concentrations and higher proportions of dissolved metal in runoff than are reported in the national database, however, that trend may not persist as the NSQD database continues to be populated.

- Drainage areas with more pavement and associated automobile traffic (e.g. the commercial, high-density residential and mixed use areas) generally had higher levels of solids, heavy metals, oil & grease, and/or TPH. It is not clear why the mixed use area had significantly higher levels of O&G and TPH than most areas, yet had lower levels of heavy metals, which would also be associated with automobile traffic.

- Surfactants were present at low levels in many of the stormwater samples, but there were no other indications of wastewater contamination. While it may be a useful tool in dry weather screening, additional wet weather testing of surfactants is not warranted.

4.4 RECEIVING WATER MONITORING – BUSSEY BROOK, CHANDLER POND, CANTERBURY BROOK

The permit stated that the Commission was required to monitor a minimum of four receiving waters three times a year throughout the permit term. The purpose of the receiving water monitoring was to characterize the water quality impacts of stormwater discharges from the Commission's drainage system.

The word “receiving waters” as stated in the permit were somewhat ambiguous. The fact sheet provided with the draft permit when it was issued stated that the (draft) permit was conditioned to include four “sampling stations”, or four “locations”. After careful consideration of receiving water monitoring locations, the Commission set forth a program designed to result in a better understanding of the overall impact stormwater discharges have on receiving water quality. It consisted of collecting wet weather samples from five sampling “stations”, located within three receiving water ‘bodies”. Two of the water bodies (Bussey Brook and Canterbury Brook) were sampled at stations located upstream and downstream of Commission owned storm drain outfalls. One body (Chandler Pond) was sampled at one station near its outlet to the Commission’s drainage system. In addition, although not required under the permit, samples were collected from each of the five sample stations during dry weather; this was to get an overall idea of the quality of the receiving waters without the influence of wet weather discharges.

The Commission’s receiving water monitoring program was described briefly in the Commission’s Stormwater Management Report for 2000, and elaborated upon in the annual reports for subsequent years. The receiving water issue was specifically brought to EPA’s attention in the Commission Stormwater Management Report for 2001. In a memorandum faxed to the Commission on April 29, 2003, EPA stated that the proposed revisions to the receiving water monitoring program were “acceptable. A letter dated May 13, 2003, was also sent by DEP to the Commission “reasonable and appropriate”.

Wet and dry weather water quality samples were collected from the five receiving water stations in 2001, 2002, 2003, 2004, 2005 and 2006. Since the Commission was unable to perform receiving water quality monitoring in 2000, an additional round (three storms) of wet weather receiving water quality monitoring was performed in 2004.

A brief summary of the conclusions made based on the receiving water monitoring is provided below. A more detailed discussion of the program is provided in Appendix C.

Based on the receiving water monitoring data generated by the program, the following general conclusions can be made:

- Wet weather concentrations of dissolved copper and zinc consistently exceeded water quality criteria in the two brooks monitored. At least one-third of the wet weather dissolved zinc concentrations in Chandler Pond also exceeded the criteria. Frequent dry weather exceedances of both metals in the brooks suggest that concentrations of these metals in excess of the applicable water quality standards may be typical in urban Massachusetts’s waters.

- Bacterial concentrations also consistently exceeded water quality criteria in the receiving waters during wet weather, particularly in the two brook locations. While dry weather exceedances were also relatively frequent, the concentrations were generally lower.

- Through the use of paired sampling to isolate storm drain discharges and dry weather sampling to assess "background" conditions, it was clearly demonstrated that sources other than the Commission's storm drains are the primary cause of metals and bacterial pollution in the brooks. Chandler Pond does not have many other sources of pollution and is generally cleaner than the brooks.

- There was no indication that stormwater has a significant impact on any of the other pollutants monitored in the receiving waters.

- Surfactants were present at low levels in many of the receiving water samples, but there were no other indications of wastewater contamination. While it may be a useful tool in dry weather screening, additional wet weather testing of surfactants is not warranted.

4.5 PINE NECK CREEK WATER QUALITY ASSESSMENT

In 2006, the Commission completed a water quality assessment of the Pine Neck Creek (PNC) storm drain system. The system discharges at outfall 12L092, which is located just south of Tenean Beach in the Dorchester neighborhood of Boston. The assessment was performed by the Commission to determine if the PNC storm drain system was contributing to the elevated levels of bacterial at Tenean Beach. Project components included: investigation of the PNC tributary area using the sandbag method of investigation; a sanitary survey of the PNC watershed to identify all possible sources of bacterial contamination to Pine Neck Creek and Tenean Beach; wet and dry weather receiving water quality sampling of Pine Neck Creek and near Tenean Beach; and dye tracing of discharges from the PNC outfall and nearby CSO outfall 090.

Through a review of existing information and statistical analysis, it was concluded that:

Activation at CSO 090 correlated with high bacteria counts at Tenean Beach

Elevated bacteria levels at Tenean Beach correlated with rain events, which occurred within 24 hours of sampling. Other beaches in the area, such as Malibu Beach, presented similarly. The conclusions for this project were are as follows:

- No illegal tie-ins or other illicit discharges to the PNC storm drainage system were found.

- The PNC outfall did not have a significant potential to cause dry weather closures at Tenean Beach. Enterococcus levels measured at the outfall, prior to any mixing, during two 24-hour dry weather sampling events were well below the 104 CFU/100ml beach closure standard. Only one sample had a level above this standard; the level measured was 140 CFU/100 ml. The mean concentration for both of these events was 15 CFU/100 ml. Dye testing also indicated that dilution will cause a 3 to 4-log reduction from the levels of bacteria measured at the outfall to the levels measured at the beach sampling stations.

- Two significant dry weather sources of bacteria were identified; a 64-inch outfall and outfall CSO 090, which is located to the north of the 64-inch outfall[1]. Both had levels of bacteria during a dry weather event that were more than an order-of-magnitude greater than levels at the PNC outfall.

- Beach closures tended to occur 24 – 48 hours after rain events and activation of CSO 090. Statistically, this could explain approximately 86% of beach closures. Dry-weather dye tracing showed that tidal influence transports flow from the mouth of CSO 090 to Tenean Beach within 24 hours.

- There were numerous other wet-weather sources of bacteria in the Tenean Beach area. These include four major sources and nine smaller sources, all of which were outfalls.

- Dye tracing indicated that CSO 090 has the potential to influence bacterial levels at the beach.

The Pine Neck Creek Water Quality Assessment was completed in 2007.

4.6 BMP DEMONSTRATION PROJECTS

a. Catch Basin Effectiveness Demonstration Project

Wet weather monitoring of solids loading into and out of two catch basins located in the high-density residential area on Mount Vernon Street in Charlestown was conducted during three spring storm events in 2001 and 2002. The data was used to assess the capture efficiencies of the catch basins. Solids accumulation in the catch basin sumps was also tracked.

Whereas the catch basin efficiencies measured in the two catch basins during 2001 ranged from 10 to 33 percent, the three storm events monitored in 2002 all indicated negative solids capture efficiencies, as the solids accumulation in the catch basin sumps was approaching half of the sump depths. This suggested that the catch basins become less effective at removing total solids as the depth of sediment in the sump approaches 50 percent. These findings were consistent with the conclusions of other studies reported in the literature.

The Catch Basin Effectiveness Demonstration Project was completed in 2002. However, the Commission continued to monitor the depth of sediment in the two catch basin sumps on a quarterly basis throughout 2004 to determine if any additional solids capture occurred. Sediment depths in both catch basins continued to increase through May 2003,

[1] Since the Pine Neck Creek Water Quality Assessment was completed, the area tributary to CSO 090 was separated. The 090 area, as well as the area tributary to the 64-inch storm drain referred to, are both currently under investigation for illegal connections.

but began to level off and even decline in subsequent months. This supports the suggestion that the catch basins may have achieved their maximum effectiveness.

A more detailed discussion of the Commission's Catch Basin Effectiveness Demonstration Project is provided in D.

b. Pet Waste Management Demonstration Project

The Pet Waste Management Demonstration project conducted in Wesley G. Ross Playground in Hyde Park was completed in 2002. The project included characterizing existing conditions in 2001 by conducting a visual survey of the playground, and interviewing dog owners in the area and playground users. A pet waste education program was implemented in the spring and summer of 2002 to increase public awareness of the impact of pet waste on water quality. This was primarily accomplished through interviews with nearby residents and park users, and the distribution of multicolored, bilingual "Scoop the Poop" flyers distributed at the conclusion of the interviews. These flyers were also mailed to 172 residents in the vicinity of Ross Playground and an advertisement in French Creole, promoting the "Scoop the Poop" message was placed in a newspaper serving Boston's Haitian population.

The Boston Office of Animal Control also conducted one of their free rabies vaccinations clinics in the area on May 11, 2002, at which the flyers and sample pooper scooper bags were distributed to participants. In addition, Commission staff met with a representative of the Boston Parks Department to suggest ways in which that department could enhance pet waste management, including improved signage and year-round availability of trash receptacles.

To evaluate the success of the pet waste education project, a follow up visual survey and interviews with the dog owners and park users were completed after implementation. For the Pet Waste Management Demonstration Project, it was not possible to draw definitive conclusions regarding the effect of the education program on reducing bacterial contamination of stormwater. In general, the Pet Waste Management Program was well received by park users and area residents, and seemed to raise the awareness of dog-owners with respect to the potential impact of dog waste on water quality. It also appeared to have had an impact on the level of pet waste cleanup in the park, as indicated by the approximately 50 percent average reductions in the density of pet waste deposits after the program was put in place. This result is a clear aesthetic benefit. Whether it is a result of the environmental issues raised, or secondary "peer pressure" induced by the program is unclear, as is the question of whether the improvement in cleanup efforts will be long lasting. Less clear is the net impact on stormwater quality, since levels of bacteria in the runoff are so variable and affected by so many factors.

A more detailed discussion of the Commission's Pet Waste Management Demonstration Project is provided in Appendix D.

c. Catch Basin Maintenance and Cleaning

Under the Commission's Catch Basin Preventive Maintenance Program, the sediment depths in one hundred catch basins were monitored between January 2002 and April 2003 to determine the factors that effect how quickly catch basins become full. Variables considered in selecting the catch basins to be monitored included slope, land use, the size of the tributary area, the type of road (high traveled road vs. back road) and tree cover. The selected catch basins were inspected four times each on a quarterly basis and the depth of sediment measured.

No statistically significant correlation between land use and accumulation rates was observed. Similarly, no correlation was observed based on slope, drainage area, or neighborhood characteristics. Some correlation with tree cover was observed, with the catch basins located in areas of denser tree coverage demonstrating as much as 50 percent higher accumulation rates as compared to basins with little or no tree cover. The data also exhibited a seasonal correlation, with the winter months demonstrating the highest accumulation rates.

RECEIVING WATERS
CHANDLER POND
ALLSTON/BRIGHTON
MAP 21C,22C
(ONE LOCATIONS)

HIGH DENSITY RESIDENTIAL
MT. VERNON STREET
CHARLESTOWN
MAP 27K

RECEIVING WATERS
BUSSEY BROOK
ROSLINDALE
MAP 13E
(TWO LOCATIONS)

LOW DENSITY RESIDENTIAL
HOLLYWOOD ROAD
WEST ROXBURY
MAP 13D

COMMERCIAL AREA
WASHINGTON STREET
DORCHESTER
MAP 8J

RECEIVING WATER
CANTERBURY BROOK
ROSLINDALE
MAP 11G
(TWO LOCATIONS)

OPEN SPACE
WESLEY G. ROSS
PLAYGROUND
HYDE PARK
MAP 7G

MIXED USE
HYDE PARK AVENUE
HYDE PARK
MAP 5F

REVERE
EVERETT
CHELSEA
WATERTOWN
SOMERVILLE
NEWTON
BROOKLINE
BOSTON HARBOR
DORCHESTER BAY
QUINCY
MILTON
DEDHAM

Mystic River
Chelsea River
Belle Isle Inlet
Charles River
Boston Inner Harbor
Fort Point Channel
Reserved Channel
Neponset River
Stony Brook
Mother Brook
Canterbury Brook
Bussey Brook
Brook Farm Brook

Harvard University
Charles River Reservation
Chandler Pond
Chestnut Hill Reservoir
Olmsted Park
Jamaica Pond
Franklin Park
Franklin Park Zoo
Arnold Arboretum
Fenway Park
Muddy Fens River Back Bay
Roxbury Crossing
Public Gardens
Boston Commons
White Stadium
Scarborough Pond
Forest Hills Cemetery
Mt. Hope Cemetery
New Cavalry Cemetery
Cavalry Cemetery
St. Mary's Cemetery
Fallon Field
Kelly Field
Turtle Pond
George Wright Municipal Golf Course
Stony Brook Reservation
Sprague Pond
Neponset River Reservation
Charlestown Navy Yard
Belle Island Reservation
Pleasure Bay
Marine Park
Thomas Park
L St. Beach
Columbus Park Beach
Carson Beach
Commercial Point
Savin Hill Cove
Fox Point
UMASS Boston Campus
John F. Kennedy Library
Spectacle Island
Thompson Island
Dorchester Park
Cedar Grove Cemetery
Neponset River Reservation
Mt. Lebanon Cemetery
Mt. Benedict Cemetery
St. Joseph's Cemetery
Old Riverdale Park
Island Pond

LEGEND

- City Boundary
- 8I153 — Stormwater Tributary Area and Outfall Number
- Study Area Boundary and Monitoring Location
- Receiving Water Monitoring Sites
- Stormwater Outfall Locations
- 10J — BWSC Map

DATA SOURCES
BOSTON WATER AND SEWER COMMISSION SEWER SYSTEM GIS
MASSGIS LAND USE MAP AND FIELD SURVEY

RIZZO ASSOCIATES
A TETRA TECH COMPANY

BOSTON WATER AND SEWER COMMISSION

Designed by: BMB
Drawn by: SJM
Checked by: DMG/SKB
Date: MAY 2004
Scales: 1:2000

Date	Approved	Revision

NPDES STORMWATER MONITORING PROGRAM

MONITORING LOCATIONS

5.0 PROGRAM MODIFICATIONS

Numerous modifications were made to the Commission's stormwater programs over the last ten years. These modifications were described in previous annual Stormwater Management Reports and are summarized below. This section also describes any additional changes now being proposed.

5.1 STORMWATER MANAGEMENT PROGRAM

No changes to the Commission's stormwater management program and pollution prevention activities are proposed are proposed at this time. The Commission is expecting that its NPDES Stormwater Permit will be re-issued in 2010. A new Stormwater Management Plan will be developed under the terms of the permit.

5.2 OUTFALL SCREENING

a. Dry Weather Outfall Screening of Storm Drain Outfalls

In the last several years, illegal connection investigations have been expanded into many new areas, and many illegal connections and other problems have been identified and corrected. To evaluate current conditions in the Commission's drainage system overall, in 2010, all of the Commission's outfalls, including the non-major outfalls, will be screened. Funding for this effort was included in the Phase 2 Citywide Illegal Connection Investigation Program contract. Initial inspections of the outfalls are expected to be completed in March/April, 2010, followed by field sampling in the spring/summer of 2010. The field screening is expected to be completed by September, 2010.

The methodology and sampling parameters will be similar to that used during the previous screening, and sampling for indicator bacteria will be included. Crews will also determine where new outfall identification signs are needed. The results of the field screening will be presented in the Commission's next Stormwater Management Report.

b. Wet Weather Outfall Screening of Storm Drain Outfalls

The Commission performed wet weather screening of 24 outfalls in 2000, 15 of which were 36-inches in diameter or larger. No odor was detected in any of the outfalls screened. Clarity of the flow was cloudy or opaque in 17 cases. These observations are fairly typical for stormwater discharges. Evidence of an illegal connection was observed

during wet weather screening at one outfall. However, the evidence observed (white chalky marks on the outfall walls) would have been equally visible during a dry weather inspection.

Inspecting an outfall during a single wet weather event provides only a single "snap shot" of conditions in the drainage areas overall. It does little to establish where the contamination might originate. Furthermore, evidence of contamination observed at the outfall during a rain storm may only represent what is being "washed down" from upstream sources. Since little useful information was being gained by the wet weather screening of the outfalls, the Commission believed that resources could be put to better use pursuing dry weather illegal connection investigations, and in its 2001 Stormwater Management Report, the Commission reported that wet weather screening of major outfalls would be discontinued. In a memorandum faxed by EPA to the Commission on April 29, 2003, EPA stated that the proposed elimination of the wet weather outfall screening was approved. DEP also sent a letter to the Commission dated May 13, 2003, stating that elimination of the wet weather outfall screening was "reasonable and appropriate".

5.3 ILLEGAL CONNECTION INVESTIGATIONS

The Commission's Illegal Connection Investigation Programs are expected to continue as described in Section 2. The Citywide Illegal, Phase 2 program is expected to continue over the next three years. In 2010, the Phase 2 program will continue to utilize the top to bottom/sandbag approach, and employ "work around" methods if and where possible. Work around methods might include dye testing all of the buildings in a particular stretch of pipe in order to advance progress downstream of known contamination sources. In more expedient or specialized investigations are warranted, the Commission will direct them to its Field Engineering staff.

The Commission will continue to evaluate methods for determining completeness of the investigations in each drainage area. The Commission will also work on developing maps that illustrate where work has been completed, and where progress has been made since the previous year.

In 2010, under the Citywide Phase 2 program, investigations in drainage areas that discharge to outfalls located in close proximity to beaches will continue to take first top priority. To ensure efficient use of resources and avoid fragmentation in the program approach, investigations in areas started during SBI and Phase 1 will be given the next level of priority. Several of those areas were previously identified by EPA, DEP and other parties as high priority, and they will remain as such. Next priority for investigations will be given to the areas opened for investigation under Phase 2. Investigations in additional areas under the Citywide Phase 2 program will be implemented as resources permit.

5.4 ILLEGAL CONNECTION REMEDIATION

In 2010, the Commission will continue to pursue correction of outstanding illegal connections. Priority will be given to those the illegal connections that have been outstanding for the longest time.

5.5 STORMWATER MONITORING PROGRAMS

The Commission completed the representative and receiving water monitoring required under the permit, as described in Section 4. In 2007, anticipating that the Commission's permit would soon be re-issued by EPA/DEP, the Commission sent a letter to EPA/DEP stating that it had fulfilled all of the monitoring requirements of the existing permit, and there were no immediate plans to continue representative and receiving water monitoring. Since there was no response from EPA or DEP regarding the letter, it was concluded that this was acceptable to EPA and DEP.

In 2010, the Commission will be implementing a program to monitor stormwater discharges from the same three drainage areas and receiving waters previously monitored. The purpose of the monitoring is to determine if there has been any change in the concentration of pollutants over time, and to try to determine the source(s) of the contaminants. If concentrations of pollutants are elevated, the program will include development of recommendations for measures aimed at reducing the concentrations of the pollutants in the stormwater discharges.

For this program it is anticipated that a total of three (3) storm events will be sampled in each of the three (3) representative areas and the three receiving water bodies. Proposals are currently being solicited and it is anticipated that the monitoring will begin in April 2010.

5.6 BMP DEMONSTRATION PROGRAMS

The Pet Waste Management and Catch Basin Effectiveness Evaluation BMP programs were concluded in 2002. No additional demonstration programs are planned at this time.

5.7 ASSESSMENT OF STRUCTURAL CONTROLS

The Commission currently owns 15 particle separators. All fifteen (15) particle separators were cleaned in 2009. Information regarding the various particle separators, including their locations, receiving waters, and amount of material removed at each cleaning since 2001, is summarized in Table 9 – 1 in Section 9.

The cleaning data provided demonstrate that there are significant differences in the amount of material removed from each separator from year to year. The reasons for this are unclear. There are many variables which could affect the amount of material retained in a separator, including, frequency and intensity of rain and snow storms, land use,

topography and size of the area tributary to the particle separator, season during which the separator was cleaned and design factors. The Commission typically uses a vactor truck with a vacuum hose to clean its particle separators, and this equipment is not conducive to accurate quantification of material removed. The amount of material removed is estimated by the operator and not measured. Each operator may estimate the amount of material removed differently than others. For these reasons it is difficult to establish which factor(s) determine how well a particle separator removes solids, or why one particle separator appears to capture more sediment than another.

Also unclear, is whether the amount of material removed at each cleaning represents the cumulative sediment load captured by the device over the year, or that it is only the amount of material that happens to be in the separator at the time of cleaning. To examine this issue more closely, in 2010, the Commission plans to inspect and clean two of its particle separators once a month for three months, to determine if there is any difference in the amount of material removed. It is anticipated that the particle separators will be inspected and cleaned in March, April and May, 2010. The Commission's other particle separators will be cleaned at least once during 2010.

6.0 FINANCING STORMWATER MANAGEMENT

The Commission's Enabling Act empowers the Commission to independently set rates and charges for the services that it provides. The Commission is required to establish fees, rates, rents, assessments, and other charges at a level and amount at least sufficient to pay the principal, premium, and interest on bonds issued by the Commission; to maintain its reserve funds as stipulated by its General Bond Resolution; to provide funds for paying the cost of all necessary repairs, replacements, and renewals of the water and sewer systems; and to pay any and all other amounts which the Commission, by law or by contract, is obligated to pay.

In determining costs for the Commission's Stormwater Management Program and NPDES Stormwater Permit compliance, it is difficult to separate costs that are specifically attributed to the stormwater system, as opposed to those incurred for the management of the Commission's operations as a whole. In many cases staff, equipment and vehicles are shared among divisions and departments, and activities that accomplish one particular goal, may also serve to satisfy the requirements of the Stormwater Permit.

The Commission has sufficient funds, staffing levels, and equipment to carry out the stormwater management programs and activities required under the NPDES Stormwater Permit. A major portion of the Commission's Stormwater Management Program and NPDES Stormwater Permit compliance activities are achieved using existing in-house staff and resources. Staffing and equipment are budgeted under the Commission's Current Expense Budget (CEB), which is updated annually. Larger sewer and drain projects are funded under the Commission's Capital Improvement Program Plan (CIP). The Commission's three-year CIP is updated annually.

6.1 CURRENT EXPENSE BUDGET

The 2009 Current Expense Budget provided for $280.6 million in revenues and expenses. This amount represented a 4.3 percent increase as compared to the 2008 budget. Of the total budgeted for 2009, $56.2 million was for direct expenses. The remaining $224.4 million was budgeted for the assessment by the Massachusetts Water Resources Authority ($173 million), Debt Service ($40.8 million), Capital Improvements ($10.1 million), contractual Funding Obligations ($0.3 million), and the Safe Drinking Water Act Assessment ($0.2 million).

In general, stormwater programs and activities are managed in-house by the Commission's Operations and Engineering Divisions. Approximately $24.3 million or 43 percent of the Commission's 2009 direct expense budget was for the Operations Division. Of the Operations Division's direct expense budget, about $14.1 million was for sewer and storm drain related operations. Approximately $7.2 million or 13 percent of the Commission's 2009 direct expense budget was for the Engineering Division. About $4.2 million of the Engineering Division's direct expense budget was for sewer and drain related work. Put another way, about $18.3 million was budgeted for Operations and Engineering Division's direct expenses relating to sewer and drain work. Thus sewer and drain related work represents about 33 percent of the Commission's total direct expense budget.

The Current Expense Budget for 2010 had not been finalized as of the writing of this report. However, it is anticipated that the 2010 CEB will provide a similar level of funding for direct expenses relating to sewer and drain work.

Stormwater related programs and activities funded under the Current Expense Budget include:

- Illegal connection investigations and corrections
- Illegal connection prevention
- Illegal dumping and spill response
- Infiltration and inflow identification and reduction
- Issuing Drainage Discharge Permits
- Storm drain inspections and sampling
- Sewer and storm drain maintenance and general repair
- Catch basin and particle separator cleaning and maintenance
- Designing and installing new particle separators
- Site plan review
- New service inspections and dye tests
- Issuing drain layers licenses
- Designing and constructing capital improvements
- Reviewing Environmental Notification Forms and Environmental Impact Reports
- Public education
- Rain data collection

6.2 CAPITAL EXPENDITURES

The 2009-2011 CIP included $70.4 million for sewer and drain related projects, of which $28.9 million was earmarked for 2009. The Commission's 2010-2012 CIP plan identifies $44.1 million for sewer and drain related projects, of which 14.1 million is earmarked for 2010. The complete 2010-2012 CIP plan is available on the Commission's website at www.bwsc.org.

These costs do not include the cost of CSO separation projects that are funded by the MWRA under the MWRA's CSO Control Plan. However, they do include the

Commission's costs for water and sewer work relating to the MWRA's CSO Control Plan that is not eligible for MWRA funding.

Programmatic activities covered under the 2010-2012 CIP include the following:

- Renewal and replacement (R/R) of sewers and drains.
- Projects to increase the capacity of existing sewers to maintain hydraulic capacity and structural integrity of the system, and prevent or reduce combined sewer overflows.
- Separation of combined sewers in various areas of the city, with major projects occurring in the South End, Roxbury, South Boston and East Boston.
- Identification and elimination of illegal connections to storm drains.
- Disconnection of downspout in Jamaica Plain, Dorchester, Neponset, Ward Street, Allston-Brighton, West Roxbury, Roslindale, South Boston and Hyde Park.
- Relocation of the regulator on the Dorchester Brook Sewer to remove storm flow from 185 acres of land that currently flows to the New Boston Main Interceptor.
- Program to identify and remove sources of storm water inflow to the Dorchester Interceptor.
- Construction of a new storm drainage system along Morrissey Boulevard to facilitate sewer separation.
- Projects relating to the MWRA's CSO control plan that are necessary, but are not eligible for funding by the MWRA. These include renewal and replacement of existing sewers and drains in the areas being separated, rehabilitation or relay of water mains in the areas, and associated paving costs.
- Installation and upgrade of the Commission's rain gauges.

7.0 ENFORCEMENT

The Commission's approach to enforcement is generally proactive in that it focuses primarily on public and contractor education, and requiring proper site planning by developers. Enforcement, should it be necessary, is supported by the Commission Sewer Use Regulations and the Site Plan Requirements.

The Commission's method of enforcement varies, depending on the type and magnitude of the violation. In most cases, such as those involving spills and leaks to the drainage system and non-stormwater discharges, the Commission prefers to work with the violator or responsible party to ensure that the problem is quickly and effectively remedied. Actions the Commission took relative to spill and leaks are described in Section 3.2.c.

In cases where the responsible party or owner fails to cooperate with the Commission and remedy the problem, a letter of violation is issued describing the nature of the problem and a fine may be assessed.

In 2009, the Commission issued twenty-four (24) letters/orders regarding violations of the Commission's Sewer Use Regulations relating to illegal connections. Eighteen (18) violation letters were to inform the property owners of their obligation to correct illegal connections on their property. Four (4) letters were to notify the owners that they were being fined for failure to correct illegal connections on their properties. Two (2) were issued to gain access properties to perform dye tests.

8.0 WATER QUALITY IMPROVEMENTS

The Commission's Stormwater Management Program is a compilation of programs, activities, and best management practices aimed at preventing the discharge of pollutants to storm drains and receiving waters. Water quality improvements attributable to the Commission's Management Program are difficult to quantify, since most of the measures the program contains are non-structural, and are aimed at controlling the introduction of pollutants to the storm drain system at their sources, as opposed to end-of-pipe treatment or structural controls. Therefore, the Commission assesses water quality improvements based on measures that are quantifiable, such as how much wastewater is removed from the drainage system when an illegal connection is eliminated and how much sediment is removed from stormwater runoff by structural devices.

8.1 ILLEGAL CONNECTION ELIMINATION

The Commission believes that eliminating illegal sanitary connections to storm drains is the most cost-effective and environmentally beneficial means of improving water quality. In 2009, the Commission's corrected 44 illegal connections, thereby eliminating the discharge of an estimated 8,594 gallons per day (gpd) of wastewater to the drainage system and receiving waters. Illegal connections corrected by the Commission and other parties in 2009 were listed previously in Table 2-6.

Between 1986, when the Commission first began eliminating illegal connections, and the end of 2009, the Commission eliminated over 1,075 illegal connections, thereby eliminating the discharge of an estimated 567,217 gallons of wastewater per day to the storm drainage system and receiving waters.

Table 8-1 at the end of this section lists all of the illegal connections corrected by the Commission or other parties since 1986.

8.2 SEWER, DRAIN, CATCH BASIN AND PARTICLE SEPARATOR CLEANING

In 2009, the Commission and its contractors removed an estimated 18,430 cubic yards of material from the Commission's catch basins, particle separators, and drains that might have otherwise ended up in local rivers and waterways.

8.3 BMPS ON PRIVATE PROPERTY

Under the Commission's Sewer Use Regulations and Requirements for Site Plans, there are several provisions requiring the installation of structural best management practices by private parties, as described below.

a. Privately Owned Retention/Infiltration Devices

On-site retainage and infiltration of stormwater is required for new and redevelopment projects, whenever site conditions permit, as determined by the Commission. Project developers are required to include a feasibility assessment for on-site retention of stormwater with the site plan submitted to the Commission for the project. On-site retention of stormwater serves to limit peak discharge rates, recharge groundwater, and remove 80 percent of total suspended solids in the flow to the extent feasible. This requirement is consistent with the Department of Environmental Protection's Stormwater Management Policy which establishes standards for stormwater management for development. On site retention has typically been in the form of a dry well.

On-site retention devices are usually owned by the owner of the property where they are located, and the owner is responsible for cleaning and maintenance. Owners of on-site devices are not required to provide actual numbers to the Commission. However, the devices are expected to remove solids consistent with their designs.

In 2009, the Commission approved 147 infiltration device installations. The addresses of the devices approved in 2009 were listed previously in Table 3 – 4. Since 1993, when the Commission first started tracking infiltration devices installed pursuant to site plans, 1,158 private development projects have included installation of dry wells. Table 8 – 2 at the end of this section lists the addresses of the devices approved since 1993.

b. Privately Owned Particle Separators

In order to prevent oil, grease and sediments from discharging to open waterways, the Commission requires that developers install particle separators on all newly constructed storm drains that serve outdoor paved areas of 7,500 square feet in size or greater. The Commission ensures that particle separators on parking lots are included in the project design during site plan review. The Commission may require particle separators on existing storm drains from existing outdoor parking areas, where appropriate. This requirement has been in place since 1992.

Parking lot particle separators are usually owned by the owner of the property where they are located, and the owner is responsible for their cleaning and maintenance. Owners of on-site particle separators are not required to provide actual numbers to the Commission. However, the devices are expected to remove solids consistent with their designs.

In 2009, the Commission approved installation of particle separators at 23 locations. The addresses of the devices approved in 2009 were previously listed on Table 3 – 5.

Since 2001, when the Commission first started tracking particle separators installed pursuant to site plans, 202 private development projects have included installation of particle separators. Table 8 – 3 at the end of this section lists the addresses of the particle separators approved since 2001.

BOSTON WATER AND SEWER COMMISSION
ILLEGAL CONNECTION REMEDIATION PROGRAM

Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1992	2250	Dorchester Avenue	DO 15L 088	Dorchester Bay	Boston Harbor	307.70
Repaired	1992	133	Hancock Street	DO 15L 088	Dorchester Bay	Boston Harbor	444.56
Repaired	1990	62	Savin Hill Avenue	DO 15L 088	Dorchester Bay	Boston Harbor	229.46
Repaired	2008	32	Auckland Street	DO 15L 089	Dorchester Bay	Boston Harbor	162.35
Repaired	2000	168-170	Savin Hill Avenue	DO 15L 089	Dorchester Bay	Boston Harbor	112.88
Repaired	2000	180-182	Savin Hill Avenue	DO 15L 089	Dorchester Bay	Boston Harbor	152.21
Repaired - Owner	1994	401	Morrissey Boulevard	DO 15L 089	Dorchester Bay	Boston Harbor	250.00
Repaired	1990	178	Grampian Way	DO 15L 089	Dorchester Bay	Boston Harbor	106.17
Repaired	1990	176	Grampian Way	DO 15L 089	Dorchester Bay	Boston Harbor	96.32
Repaired	2003	139	Sydney Street	DO 18L 087	Dorchester Bay	Boston Harbor	254.73
Repaired	2003	150	Sydney Street	DO 18L 087	Dorchester Bay	Boston Harbor	77.00
Repaired	2003	115	Sydney Street	DO 18L 087	Dorchester Bay	Boston Harbor	404.00
Repaired	2006	26	Edison Green	DO 18L 087	Dorchester Bay	Boston Harbor	345.88
Repaired	1996	54/56	Warren Street	DO 26K 099	Inner Harbor	Boston Harbor	180.76
Repaired	1990	36-38	Winthrop Street	DO 26K 099	Inner Harbor	Boston Harbor	70.55
Repaired - Owner	2009	9	Neptune Circle	DO 28N 207	Boston Harbor	Boston Harbor	3.00
Repaired	2000	79	Homer Street	DO 28N 207	Boston Harbor	Boston Harbor	793.14
Repaired	2000	83	Homer Street	DO 28N 207	Boston Harbor	Boston Harbor	274.83
Repaired	1990	10	Nancia Street	DO 28P 001	Boston Harbor	Boston Harbor	239.79
Repaired	1990	146	Saint Andrew Road	DO 28P 001	Boston Harbor	Boston Harbor	178.92
Repaired	1990	125	Saint Andrew Road	DO 28P 001	Boston Harbor	Boston Harbor	99.60
Repaired - Owner	2009	48	Montmorenci Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	26.40
Repaired - Owner	2009	223	Gladstone Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	15.00
Repaired - Owner	2009	55	Montmorenci Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	145.42
Repaired - Owner	2009	695	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	42.26
Repaired - Owner	2008	25	Breed Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	808.24
Repaired	2007	23	Thurston Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	106.82
Repaired	2006	200	Leyden Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	736.55
Repaired	2005	1071	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	334.25
Repaired	2003	51	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	151.62
Repaired	2001	1048	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	627.00
Repaired - Owner	2001	76	Montmorenci Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	164.40
Repaired	2000	31	Seaview Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	249.01
Repaired - Owner	2000	49-51	Saint Andrew Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	468.46
Repaired	1997	653	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	354.15
Repaired	1996	980	Saratoga Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	811.58
Repaired	1996	984	Saratoga Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	1366.78
Repaired	1996	986	Saratoga Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	456.88
Repaired	1996	37	Wordsworth Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	247.16
Repaired	1996	7	Walley Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	293.28
Repaired	1995	12	Ashley Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	65.89
Repaired	1994	59	Saint Andrew Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	289.59
Repaired	1993	4	Thurston Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	60.87
Repaired	1993	1006	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	2189.43
Repaired	1993	669	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	250.85
Repaired	1993	3	Thurston Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	466.66
Repaired	1993	59	Montmorenci Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	97.50
Repaired	1993	68	Montmorenci Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	81.16
Repaired	1992	198	Orient Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	343.08
Repaired	1992	39	Seaview Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	171.54
Repaired	1990	92	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	274.83
Repaired	1990	100	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	70.09
Repaired	1990	64	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	189.56
Repaired	1990	48	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	164.16
Repaired	1990	52	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	392.88
Repaired	1990	88	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	387.35
Repaired	1990	68	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	49.80
Repaired	1990	84	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	73.78
Repaired	1990	96	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	167.61
Repaired	1990	1058	Bennington Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	656.64
Repaired	1990	33	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	223.19
Repaired	1990	174	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	250.00
Repaired	1990	178	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	250.00
Repaired	1990	121	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	197.36
Repaired	1990	53-55	Barnes Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	256.39
Repaired	1990	123	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	95.91
Repaired	1990	69	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	372.59
Repaired	1990	91	Faywood Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	177.22
Repaired - Owner	1990	84	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	166.52
Repaired	1990	88	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	169.69
Repaired	1990	187-189	Gladstone Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	909.34
Repaired	1990	220	Leyden Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	328.32
Repaired	1990	61	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	64.56

BOSTON WATER AND SEWER COMMISSION
ILLEGAL CONNECTION REMEDIATION PROGRAM

Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1990	36	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	670.57
Repaired	1990	232	Leyden Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	405.70
Repaired	1990	249	Leyden Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	424.24
Repaired	1990	35	Beachview Road	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	269.30
Repaired	1990	120	Orient Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	269.30
Repaired	1990	195	Orient Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	66.40
Repaired	1990	166	Orient Avenue	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	237.94
Repaired	1990	93	Leyden Street	DO 29O 001	Boston Harbor (Constitution Beach)	Boston Harbor	569.95
Repaired	1993	126	Barnes Avenue	DO 29P 015	Belle Isle Inlet	Boston Harbor	171.54
Repaired	1992	22	Swan Avenue	DO 30P 062	Belle Isle Inlet	Boston Harbor	265.61
Repaired	1992	24	Swan Avenue	DO 30P 062	Belle Isle Inlet	Boston Harbor	385.50
Repaired	2007	390	K Street	OF 19M 083	Dorchester Bay	Boston Harbor	83.61
Repaired	2002	392	K Street	OF 19M 083	Dorchester Bay	Boston Harbor	212.52
Repaired	2002	393	K Street	OF 19M 083	Dorchester Bay	Boston Harbor	98.90
Repaired	2007	6	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	88.18
Repaired	2007	14	Westwood Street	OF 21K 070	Fort Point Channel	Boston Harbor	43.30
Repaired	2007	19	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	118.68
Repaired	2007	17	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	65.68
Repaired	2007	15	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	112.92
Repaired	2007	11	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	126.83
Repaired	2007	10	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	164.16
Repaired	2007	8	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	160.79
Repaired	2007	2-4	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	292.46
Repaired	2007	218-216	Warren Street	OF 21K 070	Fort Point Channel	Boston Harbor	291.98
Repaired	2007	9	Montrose Street	OF 21K 070	Fort Point Channel	Boston Harbor	79.54
Repaired - Owner	2007	396	Northampton Street	OF 21K 070	Fort Point Channel	Boston Harbor	331.55
Repaired	2002	190	Normandy Street	OF 21K 070	Fort Point Channel	Boston Harbor	2365.23
Repaired - Owner	1990	100	East Canton Street	OF 21K 070	Fort Point Channel	Boston Harbor	734.72
Repaired	1988	17	Cunningham Street	OF 21K 070	Fort Point Channel	Boston Harbor	278.52
Repaired	1987	285	Dorchester Avenue	OF 21K 070	Fort Point Channel	Boston Harbor	4310.61
Repaired - Owner	1995	920	East First Street	OF 21N 080	Reserved Channel	Boston Harbor	3486.12
Repaired - Owner	1994	27-33	Wormwood Street	OF 22L 073	Fort Point Channel	Boston Harbor	10230.56
Repaired - Owner	1994	37-43	Wormwood Street	OF 22L 073	Fort Point Channel	Boston Harbor	250.00
Repaired - Owner	2001	230	Porter Street	OF 24N 003	Inner Harbor	Boston Harbor	
Repaired	1996	96	Commercial Street	OF 25L 057	Inner Harbor	Boston Harbor	330.17
Repaired	1996	71/73	Commercial Street	OF 25L 057	Inner Harbor	Boston Harbor	23185.45
Repaired	1994	199/203	Chestnut Hill Avenue	DMH 20D 055	Muddy River (via Brookline/Village-Strathmore)	Charles River	447.62
Repaired - Owner	1994	1925	Avenue	DMH 20D 055	Muddy River (via Brookline/Village-Strathmore)	Charles River	19821.07
Repaired	1994	48/50	Englewood Avenue	DMH 20D 055	Muddy River (via Brookline/Village-Strathmore)	Charles River	506.87
Repaired	1994	4	Kilsyth Terrace	DMH 20D 055	Muddy River (via Brookline/Village-Strathmore)	Charles River	3144.04
Repaired	1994	39	Englewood Avenue	DMH 20D 062	Muddy River (via Brookline/Village-Strathmore)	Charles River	6591.77
Repaired - Owner	2009	159	Sutherland Road	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	8.40
Repaired	2005	24	Leamington Road	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	112.86
Repaired	1995	24	Wallingford Road	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	559.62
Repaired	1994	41/53	Colborne Road	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	27797.47
Repaired	1994	46/48	Colborne Road	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	337.54
Repaired	1994	1686R	Avenue	DMH 21D 319	Muddy River (via Brookline/Village-Kilsyth)	Charles River	742.16
Repaired - Owner	2009	170	Corey Road	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Charles River	255.00
Repaired	1994	1575	Avenue	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Charles River	3095.51
Repaired	1988	All	Fidelis Way	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Charles River	250.00
Repaired	1986	296	Allston Street	DMH 21E 064	Muddy River (via Brookline/Tannery Brook)	Charles River	9510.65
Repaired	1999	14	Mount Hood Road	DMH 21E 086	Muddy River (via Brookline/Village-Cummings)	Charles River	322.77
Repaired	1998	33	Egremont Road	DMH 21E 086	Muddy River (via Brookline/Village-Cummings)	Charles River	1152.17
Repaired	1994	80	Corey Road	DMH 21E 086	Muddy River (via Brookline/Village-Cummings)	Charles River	551.51
Repaired	1999	104	Stimson Street	DO 06C 110	Charles River (Dedham/Unnamed stream)	Charles River	38.73
Repaired	1999	100	Stimson Street	DO 06C 110	Charles River (Dedham/Unnamed stream)	Charles River	91.86
Repaired	1999	96	Stimson Street	DO 06C 110	Charles River (Dedham/Unnamed stream)	Charles River	154.94
Repaired	1999	108	Stimson Street	DO 06C 110	Charles River (Dedham/Unnamed stream)	Charles River	193.67
Repaired	1999	9	Kerna Road	DO 06C 110	Charles River (Dedham/Unnamed stream)	Charles River	97.76
Repaired	2001	44	Vershire Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	373.96
Repaired	2000	10-12	LaGrange Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	170.54
Repaired	1993	34	Maplewood Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	398.41
Repaired	1993	23	Maplewood Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	250.00
Repaired	1993	32	Maplewood Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	302.50
Repaired	1993	36	Maplewood Street	DO 08E 031	Charles River (Turtle Pond, Stony Brook)	Charles River	59.02
Repaired - Owner	2003	342	Walk Hill Street	DO 11G 319	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	2096.61
Repaired - Owner	2009	606	Park Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	61.00
Repaired - Owner	2009	636-638	West Park Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	328.67
Repaired - Owner	2009	11	Middleton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	315.66
Repaired	2008	594	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	439.35
Repaired	2008	602	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	227.04
Repaired	2008	74	Capen Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	377.48
Repaired	2008	598	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	118.07

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	2008	48	Westmore Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	37.66
Repaired	2008	590	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	398.01
Repaired	2007	26	Thane Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1727.66
Repaired	2006	627	Morton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	457.00
Repaired	2004	118	Norfolk Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	115.87
Repaired - Owner	2004	729	Morton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	522.03
Repaired	2003	132	Callender Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1266.03
Repaired	2003	130	Callender Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1028.15
Repaired	2002	29	Milton Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	298.81
Repaired	2002	27	Kenberma Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	612.10
Repaired	2002	975	Blue Hill Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	100.00
Repaired	2002	360	Norfolk Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	640.69
Repaired	2002	14-16	Ormond Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	523.43
Repaired	2002	165-169	Norfolk Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	597.01
Repaired	2002	36	Theodore Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	579.18
Repaired	2001	15	Hildreth Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	328.51
Repaired	2001	36	Irma Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	680.62
Repaired	2001	834-842	Morton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1396.22
Repaired	2001	14	Kenton Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	64.56
Repaired	2001	961	Blue Hill Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	4166.57
Repaired	2001	630-632	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	154.18
Repaired	2001	49	Peacevale Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	623.24
Repaired	2001	431-433	Washington Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	2444.05
Repaired	2001	207	Callender Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	416.86
Repaired	2001	547-551	Washington Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	204.19
Repaired	2001	1118	Blue Hill Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	7273.00
Repaired	2001	636-638	Harvard Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	389.36
Repaired	2001	22-24	Brenton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	240.25
Repaired	2001	93	Nightingale Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	345.00
Repaired	2001	50	Greendale Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	518.99
Repaired	2001	29	Shafter Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	143.87
Repaired	2001	54	Greendale Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1332.66
Repaired	2000	60	Norwell Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	789.25
Repaired	2000	49	School Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	361.97
Repaired	2000	508	Park Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	660.33
Repaired	2000	53	Milton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	285.90
Repaired	2000	37	Havelock Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	585.59
Repaired	2000	20	Donald Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	140.18
Repaired	2000	43	Athelwold Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	586.83
Repaired	2000	9-11	Ansel Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	6027.85
Repaired	2000	65	Kingsdale Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	399.70
Repaired	2000	102	Talbot Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	826.74
Repaired	2000	52	Supple Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	333.98
Repaired	2000	130	Talbot Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	828.52
Repaired	2000	45	School Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	537.90
Repaired	1997	43	Pasadena Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	97.76
Repaired	1997	1	Ballou Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	837.44
Repaired	1997	30	Browning Avenue	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1424.88
Repaired	1993	498	Norfolk Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	1791.48
Repaired	1990	800	Morton Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	609.61
Repaired	1990	108	Deering Road	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	175.23
Repaired	1990	28	Astoria Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	754.40
Repaired	1987	31	Ormond Street	DO 11I 577	Charles River (Stony Brook Conduit, Canterbury Brook)	Charles River	132.49
Repaired	2002	41	Carlson Circle	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	149.41
Repaired	2000	5	Courtney Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	136.49
Repaired	2000	3	Courtney Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	128.93
Repaired	1997	3	Carlson Circle	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	257.20
Repaired	1997	505	Weld Street	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	147.56
Repaired	1997	15	Rendall Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	16.23
Repaired	1997	90	Parklawn Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	162.32
Repaired	1997	8	Glenham Street	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	66.40
Repaired	1997	69	Hackensack Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	346.77
Repaired	1997	15	Carlson Circle	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	118.05
Repaired	1997	373	Weld Street	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	217.65
Repaired	1997	122	Greaton Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	155.68
Repaired	1993	31	Crehore Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	169.69
Repaired	1993	161	Hackensack Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	44.27
Repaired	1993	63	Hackensack Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	223.19
Repaired	1993	154	Hackensack Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	164.16
Repaired	1993	18	Crehore Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	193.67
Repaired	1992	19	Courtney Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	233.15
Repaired	1992	84	Russett Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	184.45
Repaired	1992	23	Courtney Road	DO 13D 77/78	Charles River (Bussey Brook)	Charles River	116.20

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Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1994	10	Gretter Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	121.74
Repaired	1994	29	Vincent Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	153.09
Repaired	1994	66	Gretter Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	110.67
Repaired	1994	63	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	112.51
Repaired	1994	97	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	141.01
Repaired	1994	62	Gretter Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	298.81
Repaired	1994	24	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	230.56
Repaired	1994	93	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	267.45
Repaired	1994	25	Morey Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	254.54
Repaired	1994	69	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	77.47
Repaired	1994	95	Buchanan Road	DO 13E 174	Charles River (Bussey Brook)	Charles River	49.80
Repaired - Owner	1987	1245	Centre Street	DO 13E 175	Charles River (Bussey Brook)	Charles River	10877.43
Repaired	1994	6	Weld Street	DO 13E 176	Charles River (Bussey Brook)	Charles River	151.25
Repaired	2004	16	Allandale Street	DO 13F 011	Charles River (Bussey Brook)	Charles River	239.96
Repaired	2003	28	Malcolm Street	DO 13F 011	Charles River (Bussey Brook)	Charles River	230.40
Repaired	1999	31	Malcolm Road	DO 13F 011	Charles River (Bussey Brook)	Charles River	241.63
Repaired	1999	23	Elwell Road	DO 13F 011	Charles River (Bussey Brook)	Charles River	156.78
Repaired	1999	29	Hillcroft Road	DO 13F 011	Charles River (Bussey Brook)	Charles River	197.36
Repaired	1999	66	Malcolm Road	DO 13F 011	Charles River (Bussey Brook)	Charles River	157.76
Repaired	1999	32	Malcolm Road	DO 13F 011	Charles River (Bussey Brook)	Charles River	68.25
Repaired	2007	3	Conry Crescent	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	74.26
Repaired	2001	2	Cedarwood Road	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	66.00
Repaired	2000	995	Centre Street	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	118.05
Repaired	2000	14	Driftwood Road	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	206.58
Repaired	2000	24	Neillian Crescent	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	34.88
Repaired	1999	28	Bowditch Road	DO 15F 288	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	143.87
Repaired	2009	332	Jamaicaway	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	1138.63
Repaired	2009	67	Perkins Street	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	349.07
Repaired - Owner	2008	83	Parkton Road	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	39.47
Repaired	2006	6	Parkwood Terrace	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	220.95
Repaired	2005	95	Parkton Road	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	129.17
Repaired	2004	59	Perkins	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	178.97
Repaired	2004	84	Moraine Street	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	314.87
Repaired	2003	16	Parkton Road	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	122.74
Repaired	1996	19	Pondview Avenue	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	500.00
Repaired	1992	28	Parkton Road	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	322.79
Repaired	1992	35	Parkton Road	DO 18G 233	Muddy River (Leverett Pond) to Charles River	Charles River	464.26
Repaired	2007	20-22	Sachem Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	242.93
Repaired	1997	198	Hillside Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	1914.49
Repaired	1990	6-8	Stockwell Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	197.36
Repaired	1988	16-18	Stockwell Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	177.07
Repaired	1988	10	Mission Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	217.65
Repaired	1988	10-12	Stockwell Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	145.72
Repaired	1988	03	Mission Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	225.03
Repaired	1988	05	Mission Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	86.69
Repaired	1988	14	Stockwell Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	271.14
Repaired	1988	06	Mission Street	DO 19G 043	Muddy River (Riverway) to Charles River	Charles River	226.87
Repaired	2000	914 (910)	Huntington Avenue	DO 19G 194	Muddy River (Riverway) to Charles River	Charles River	273.63
Repaired	2007	30	Fenwood Road	DO 20G 161	Muddy River (Riverway) to Charles River	Charles River	1091.00
Repaired - Owner	2008	21-25	Autumn Street	DO 20G 163	Muddy River (Riverway) to Charles River	Charles River	25.00
Repaired	1997	855	Avenue	DO 23G 132	Charles River	Charles River	4911.92
Repaired - Owner	1987	213	Parsons Street	DO 24C 031	Charles River	Charles River	462.23
Repaired	1987	99-101	Cresthill Road	DO 24C 031	Charles River	Charles River	177.28
Repaired - Owner	1987	181	Parsons Street	DO 24C 031	Charles River	Charles River	3246.33
Repaired	2004	34	Gerrish Street	DO 24C 174	Charles River	Charles River	531.54
Repaired	2004	17	Gerrish Street	DO 24C 174	Charles River	Charles River	94.25
Repaired	2004	26	Gerrish Street	DO 24C 174	Charles River	Charles River	228.92
Repaired	2003	183	Bigelow Street	DO 24C 174	Charles River	Charles River	77.61
Repaired	2003	7	Riverview Road	DO 24C 174	Charles River	Charles River	161.39
Repaired	2002	40	Newton Street	DO 24C 174	Charles River	Charles River	527.95
Repaired - Owner	2008	120	Kenrick Street	DO 24D 032	Charles River	Charles River	573.49
Repaired	2006	1	Olive Street	DO 24D 032	Charles River	Charles River	310.00
Repaired	2005	15-17	Electric Avenue	DO 24D 032	Charles River	Charles River	723.71
Repaired	2005	36	Bothwell Street	DO 24D 032	Charles River	Charles River	123.12
Repaired	2005	70-68	Glencoe Street	DO 24D 032	Charles River	Charles River	237.00
Repaired	2005	586	Washington Street	DO 24D 032	Charles River	Charles River	156.73
Repaired	2005	37	Montfern Avenue	DO 24D 032	Charles River	Charles River	421.71
Repaired	2004	74-76	Nottinghill Road	DO 24D 032	Charles River	Charles River	176.87
Repaired	2004	16	Mount Vernon Street	DO 24D 032	Charles River	Charles River	183.37
Repaired	2004	55	Dunboy Street	DO 24D 032	Charles River	Charles River	283.05
Repaired	2004	15	Bostonia Avenue	DO 24D 032	Charles River	Charles River	150.55
Repaired	2004	31	Matchett Street	DO 24D 032	Charles River	Charles River	377.43
Repaired	2004	23	Greymere Road	DO 24D 032	Charles River	Charles River	192.58

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	2003	64	Lake Street	DO 24D 032	Charles River	Charles River	124.49
Repaired	2003	40	Perthshire Road	DO 24D 032	Charles River	Charles River	140.10
Repaired	2003	34	Donnybrook Road	DO 24D 032	Charles River	Charles River	86.29
Repaired	2003	100	Brayton Road	DO 24D 032	Charles River	Charles River	246.85
Repaired	1999	11	Bothwell Road	DO 24D 032	Charles River	Charles River	292.98
Repaired	1999	31-33	Bothwell Road	DO 24D 032	Charles River	Charles River	299.71
Repaired	1999	375	Faneuil Street	DO 24D 032	Charles River	Charles River	431.61
Repaired	1999	602	Washington Street	DO 24D 032	Charles River	Charles River	117.72
Repaired	1998	80	Brayton Road	DO 24D 032	Charles River	Charles River	219.50
Repaired	1998	36	Dickinson Road	DO 24D 032	Charles River	Charles River	166.01
Repaired	1998	2	Platt Road	DO 24D 032	Charles River	Charles River	435.30
Repaired	1998	12	Platt Road	DO 24D 032	Charles River	Charles River	79.31
Repaired	1998	17	Electric Avenue	DO 24D 032	Charles River	Charles River	1518.03
Repaired	1998	95	Nottinghill Road	DO 24D 032	Charles River	Charles River	268.03
Repaired	1998	72	Nottinghill Road	DO 24D 032	Charles River	Charles River	171.26
Repaired	1998	161	Foster Street	DO 24D 032	Charles River	Charles River	123.31
Repaired	1997	11	Lane Park	DO 24D 032	Charles River	Charles River	326.48
Repaired	1997	29	Lane Park	DO 24D 032	Charles River	Charles River	239.79
Repaired	1997	224	Market Street	DO 24D 032	Charles River	Charles River	1485.93
Repaired	1997	47	Nottinghill Road	DO 24D 032	Charles River	Charles River	303.29
Repaired	1997	36	Bothwell Road	DO 24D 032	Charles River	Charles River	281.38
Repaired	1997	15	North Crescent Circuit	DO 24D 032	Charles River	Charles River	178.92
Repaired	1997	65	Oak Square Avenue	DO 24D 032	Charles River	Charles River	94.07
Repaired	1997	35	Electric Avenue	DO 24D 032	Charles River	Charles River	1945.64
Repaired	1997	26	Breck Avenue	DO 24D 032	Charles River	Charles River	222.67
Repaired	1997	91/93	Foster Street	DO 24D 032	Charles River	Charles River	359.68
Repaired	1997	87/89	Foster Street	DO 24D 032	Charles River	Charles River	260.08
Repaired	1997	36	Undine Road	DO 24D 032	Charles River	Charles River	376.28
Repaired	1996	298/300	North Beacon Street	DO 24D 032	Charles River	Charles River	1103.72
Repaired	1996	290	North Beacon Street	DO 24D 032	Charles River	Charles River	1368.39
Repaired	1996	296	North Beacon Street	DO 24D 032	Charles River	Charles River	146.90
Repaired	1996	35	Donnybrook Road	DO 24D 032	Charles River	Charles River	274.83
Repaired	1996	395	Faneuil Street	DO 24D 032	Charles River	Charles River	46.74
Repaired	1995	88	Nonantum Street	DO 24D 032	Charles River	Charles River	224.29
Repaired - Owner	1995	35 I & II	Electric Avenue	DO 24D 032	Charles River	Charles River	278.30
Repaired	1994	9	Radnor Road	DO 24D 032	Charles River	Charles River	271.14
Repaired	1994	15	Radnor Road	DO 24D 032	Charles River	Charles River	488.79
Repaired	1994	76	Chestnut Hill Avenue	DO 24D 032	Charles River	Charles River	188.14
Repaired	1994	19	Converse Street	DO 24D 032	Charles River	Charles River	269.30
Repaired	1993	83-87	Academy Hill	DO 24D 032	Charles River	Charles River	527.53
Repaired	1993	245/249	Faneuil Street	DO 24D 032	Charles River	Charles River	1867.45
Repaired	1993	63	Turner Street	DO 24D 032	Charles River	Charles River	152.26
Repaired	1993	56/58	Oakland Street	DO 24D 032	Charles River	Charles River	274.74
Repaired	1993	80	Oakland Street	DO 24D 032	Charles River	Charles River	183.07
Repaired	1993	27-29	Mapleton Street	DO 24D 032	Charles River	Charles River	718.86
Repaired - Owner	1993	430/432	Washington Street	DO 24D 032	Charles River	Charles River	6018.52
Repaired	1993	79	Oakland Street	DO 24D 032	Charles River	Charles River	225.03
Repaired	1993	502	Washington Street	DO 24D 032	Charles River	Charles River	219.50
Repaired	1993	648	Washington Street	DO 24D 032	Charles River	Charles River	216.07
Repaired	1993	28	Brock Street	DO 24D 032	Charles River	Charles River	348.61
Repaired	1993	32	Brock Street	DO 24D 032	Charles River	Charles River	416.86
Repaired	1993	36	Brock Street	DO 24D 032	Charles River	Charles River	243.47
Repaired	1993	40	Brock Street	DO 24D 032	Charles River	Charles River	354.15
Repaired	1993	36	Donnybrook Road	DO 24D 032	Charles River	Charles River	95.91
Repaired	1993	506	Washington Street	DO 24D 032	Charles River	Charles River	420.99
Repaired - Owner	1992	45-43	Donnybrook Road	DO 24D 032	Charles River	Charles River	75.62
Repaired	2006	10	Redford Street	DO 24G 035	Charles River	Charles River	221.33
Repaired	2002	226	Harvard Avenue	DO 24G 035	Charles River	Charles River	157.13
Repaired	2000	280	Mason Terrace	DO 24G 035	Charles River	Charles River	
Repaired	1998	73	Brainerd Road	DO 24G 035	Charles River	Charles River	1195.09
Repaired	1993	267	Corey Road	DO 24G 035	Charles River	Charles River	346.77
Repaired	1993	12	Bellvista Road	DO 24G 035	Charles River	Charles River	614.22
Repaired	1993	35/37	Woodstock Avenue	DO 24G 035	Charles River	Charles River	213.96
Repaired	2005	20	South Waverly Street	DO 25E 037	Charles River	Charles River	352.00
eliminated	2004	269	Western Avenue	DO 25E 037	Charles River	Charles River	1481.41
Repaired	1996	44	North Beacon Street	DO 25E 037	Charles River	Charles River	502.22
Repaired	1994	60A	Waverly Street	DO 25E 037	Charles River	Charles River	771.00
Repaired	1994	14	South Waverly Street	DO 25E 037	Charles River	Charles River	143.87
Repaired	1994	30	South Waverly Street	DO 25E 037	Charles River	Charles River	236.10
Repaired	1988	04	Benson Street	DO 25E 037	Charles River	Charles River	265.61
Repaired - Owner	1990	90	Windom Road	DO 26G 001	Charles River	Charles River	2535.50
Repaired	2004	12	School Street	DO 27J 001	Charles River (Millers River)	Charles River	178.00
Repaired - Owner	2000	200	Nashua Street	Mass Highway	Charles River	Charles River	34793.94

BOSTON WATER AND SEWER COMMISSION
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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	2008	117	Revere Street	MWRA CSO 220	Charles River	Charles River	188.31
Repaired	2007	412	Back Street	OF 018	Charles River	Charles River	190.00
Repaired	1996	61	Brookline Avenue	OF 23H 042	Charles River	Charles River	10377.86
Repaired	1998	81	Dunster Road	OF 23I 023*	Charles River	Charles River	306.19
Repaired	1997	752	Huntington Avenue	OF 23I 023*	Charles River	Charles River	814.24
Repaired	1997	750	Huntington Avenue	OF 23I 023*	Charles River	Charles River	319.95
Repaired	1997	135	Whitford Street	OF 23I 023*	Charles River	Charles River	265.61
Repaired	1997	746/748	Huntington Avenue	OF 23I 023*	Charles River	Charles River	530.54
Repaired	1996	34	Grew Avenue	OF 23I 023*	Charles River	Charles River	221.34
Repaired	1996	32	Grew Avenue	OF 23I 023*	Charles River	Charles River	132.80
Repaired	1996	14	Grew Avenue	OF 23I 023*	Charles River	Charles River	67.80
Repaired	1996	22	Grew Avenue	OF 23I 023*	Charles River	Charles River	110.67
Repaired - Owner	1996	1800	Centre Street	OF 23I 023*	Charles River	Charles River	1973.62
Repaired	1996	11	Grew Avenue	OF 23I 023*	Charles River	Charles River	86.69
Repaired	1996	27	Grew Avenue	OF 23I 023*	Charles River	Charles River	132.80
Repaired	1996	35	Grew Avenue	OF 23I 023*	Charles River	Charles River	83.00
Repaired	1996	36	Grew Avenue	OF 23I 023*	Charles River	Charles River	199.21
Repaired	1995	9	Eastland Road	OF 23I 023*	Charles River	Charles River	116.57
Repaired	1995	33	Eastland Road	OF 23I 023*	Charles River	Charles River	211.27
Repaired	1995	27	Eastland Road	OF 23I 023*	Charles River	Charles River	84.63
Repaired - Owner	1995	214-218	Florence Street	OF 23I 023*	Charles River	Charles River	3540.79
Repaired	1995	15	Heathecote Street	OF 23I 023*	Charles River	Charles River	130.35
Repaired	1995	22	Hilburn Street	OF 23I 023*	Charles River	Charles River	143.87
Repaired	1995	104	Dale Street	OF 23I 023*	Charles River	Charles River	180.76
Repaired	1995	17	Burley Street	OF 23I 023*	Charles River	Charles River	119.43
Repaired	1995	76	Dale Street	OF 23I 023*	Charles River	Charles River	53.49
Repaired	1992	2	Mendelssohn Street	OF 23I 023*	Charles River	Charles River	411.33
Repaired	1991	45	Cornell Street	OF 23I 023*	Charles River	Charles River	138.34
Repaired	1991	53/55	Cornell Street	OF 23I 023*	Charles River	Charles River	250.85
Repaired	1991	75/77	Cornell Street	OF 23I 023*	Charles River	Charles River	212.12
Repaired	1990	70	Glen Road	OF 23I 023*	Charles River	Charles River	992.93
Repaired	1990	106	Deering Road	OF 23I 023*	Charles River	Charles River	167.85
Repaired	1990	51	Cornwall Street	OF 23I 023*	Charles River	Charles River	416.12
Repaired	1988	584	Huntington Avenue	OF 23I 023*	Charles River	Charles River	1208.15
Repaired	1988	35	Gordon Avenue	OF 23I 023*	Charles River	Charles River	139.33
Repaired	1987	All	Vancouver Street	OF 23I 023*	Charles River	Charles River	250.00
Repaired - Owner	2007	700	Columbus Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	
Repaired	2006	66	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	5675.73
Repaired	2005	84	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	3744.00
Repaired	2005	80	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	3143.00
Repaired	1990	33	Wyoming Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	3797.97
Repaired - Owner	2009	70	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	
Repaired - Owner	2009	1045	Canterbury Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	8.02
Repaired - Owner	2009	519	Metropolitan Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	156.73
Repaired	2009	13	Ruggles Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	711.15
Repaired - Owner	2009	59	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	588.95
Repaired - Owner	2009	74	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	
Repaired - Owner	2008	121-123	Augustus Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	244.61
Repaired	2008	65	Eldridge Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	78.57
Repaired	2008	61	Eldridge Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	367.13
Repaired - Owner	2007	10	Tower Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	74.79
Repaired - Owner	2007	1078	Canterbury Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	145.94
Repaired - Owner	2007	399	Belgrade Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	347.98
Repaired - Owner	2006	97	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	313.76
Repaired	2006	54A	Clifford Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	
Repaired - Owner	2006	1035	South Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	68.20
Repaired - Owner	2006	94	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	128.44
Repaired - Owner	2006	86	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	136.75
Repaired - Owner	2006	825	South Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	45.00
Repaired	2006	49	Woodlawn Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	350.92
Repaired	2006	514	Metropolitan Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	435.56
Repaired	2006	24	Grandview Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	135.46
Repaired	2006	76	Martin Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	28.00
Repaired	2005	173	Wren Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	116.17
Repaired	2005	75-77	Willow Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	266.95
Repaired - Owner	2005	25-27	Cliftondale Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	188.00
Repaired - Owner	2005	4095	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	20.00
Repaired - Owner	2005	100	Newburg Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	19.80
Repaired	2005	27	Peak Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	115.36
Repaired	2005	96	Fenway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2762.45
Repaired	2005	28	Cerdan Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	119.24
Repaired	2004	14	Highfield Terrace	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	470.46
Repaired	2004	111	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	112.14

BOSTON WATER AND SEWER COMMISSION
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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired - Owner	2004	78	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	131.98
Repaired	2004	225	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	204.98
Repaired	2004	18-28	Brookley Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2728.50
Repaired	2004	172	Belgrade Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	180.60
Repaired	2004	19	Emmet Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	330.08
Repaired - Owner	2004	1471	Centre Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	76.86
Repaired - Owner	2004	289	Belgrade Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	34.90
Repaired	2004	235	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	177.85
Repaired	2003	446-450	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	377.20
Repaired	2003	15	Beecher Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	280.57
Repaired	2003	685	Parkway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	195.52
Repaired - Owner	2003	366	Cummins Highway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	20.99
Repaired	2003	749	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	134.83
Repaired	2003	437	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	70.59
Repaired	2003	663	Parkway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	121.74
Repaired	2003	71	Knoll Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	189.62
Repaired	2003	697	Parkway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	145.72
Repaired	2003	237	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	74.00
Repaired	2003	21	Stella Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	83.00
Repaired	2003	77	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	140.18
Repaired - MWRA	2003	50	Mansur Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	193.67
Repaired	2003	656	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	1397.21
Repaired	2003	660	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	300.65
Repaired	2002	280	Huntington Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	93.06
Repaired	2002	60	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	145.90
Repaired	2002	50	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	70.09
Repaired	2002	60	Seymour Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	585.94
Repaired	2002	52	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	149.41
Repaired	2002	23-25	Orange Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	212.49
Repaired - Owner	2002	40	Penfield Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	378.00
Repaired	2002	18	Halliday Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	62.24
Repaired - Owner	2002	46-48	Charme Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	359.00
Repaired	2002	25	Haverford Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	76.16
Repaired	2002	102	Glendower Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	90.38
Repaired	2002	2-6	Ramsdell Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	551.27
Repaired	2002	56	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2.58
Repaired	2002	65	Southbourne Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	84.55
Repaired	2002	22	Bradlee Court	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	233.63
Repaired	2002	59	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	182.86
Repaired	2002	4629	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	426.97
Repaired	2002	93	Glendower Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	238.00
Repaired - Owner	2002	156	Newburg Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	221.34
Repaired	2002	79	Southbourne Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	96.54
Repaired	2002	1	Organ Park Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	189.21
Repaired	2002	612	Beech Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	383.66
Repaired	2002	164	Newburg Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	136.51
Repaired	2002	70	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	282.38
Repaired	2002	233	Kittredge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	135.39
Repaired	2002	246	Poplar Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	618.00
Repaired	2002	44	Goodale Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	288.79
Repaired	2002	19	Haslet Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	343.08
Repaired	2002	20	Stella Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	543.37
Repaired - Owner	2002	25-27	Glendower Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	
Repaired	2002	380	Parkway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	70.09
Repaired	2001	244	Kittredge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	392.33
Repaired	2001	42	Lourdes Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	247.35
Repaired	2001	68	Hillsboro Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	170.62
Repaired	2001	10-12	Rutledge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	79.39
Repaired	2001	39	Charme Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	53.00
Repaired	2001	4827	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	1195.00
Repaired	2001	79	Orange Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	206.00
Repaired	2001	25	Bellevue Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	257.05
Repaired	2001	127	Mount Hope Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	83.00
Repaired	2001	27	Wayburn Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	70.09
Repaired	2001	7	Seymour Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	339.00
Repaired	2001	11	Kittredge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	382.00
Repaired	2001	10	Peak Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	44.40
Repaired	2001	87	Guernsey Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	62.79
Repaired	2001	129	Corey Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	256.39
Repaired	2001	91	Corey Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	75.62
Repaired	2001	29	Glenburnie Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	160.55
Repaired	2001	240	Kittredge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	425.68
Repaired	2001	21	Cefalo Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	317.11

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	2001	182	Kittredge Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	205.00
Repaired	2001	38	Hemman Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	55.76
Repaired - Owner	2001	30	Hewlett Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	100.00
Repaired	2001	33	Ethel Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	141.58
Repaired	2001	276	Huntington Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	85.00
Repaired	2001	152	Williams Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	308.57
Repaired	2001	5	Sunset Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	277.00
Repaired	2001	21	Peak Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	197.71
Repaired	2001	244	Bellevue Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	162.32
Repaired	2001	57	Bradlee Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	57.18
Repaired	2001	37-39	Cedrus Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	265.61
Repaired	2001	33	Cedrus Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	86.16
Repaired	2001	29	Cedrus Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	103.29
Repaired	2001	316	Cornell Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	538.60
Repaired	2001	215	Roslindale Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	166.01
Repaired	2001	16	Sunset Hill Path	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	43.75
Repaired	2001	51	Cerdan Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	83.00
Repaired	2001	1467	Centre Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	70.28
Repaired - Owner	2001	129-131	Tyndale Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	400.26
Repaired - Owner	2001	5	Crane Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	312.26
Repaired	2001	240	Bellevue Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	75.62
Repaired	2001	18	Sunset Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	33.20
Repaired	2001	203	Wren Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	372.00
Repaired	2001	6	Maria Lane	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	135.94
Repaired	2001	2	Maria Lane	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	237.48
Repaired	2001	5	Vista Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	60.87
Repaired	2001	281	Huntington Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	173.00
Repaired	2001	22	Eastland Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	199.39
Repaired	2001	4549	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	40.65
Repaired	2001	3	Ethel Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	77.00
Repaired - Owner	2001	87	Knoll Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	219.50
Repaired	2001	55	Selwyn Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	260.08
Repaired	2001	136	Mount Hope Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	210.27
Repaired	2001	6	Glenburnie Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	49.80
Repaired	2001	75	Orange Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	153.00
Repaired	2001	135	Mount Hope Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	140.18
Repaired	2001	3	Glenburnie Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	190.81
Repaired	2001	131	Mount Hope Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	160.75
Repaired	2001	263	Wachusett Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	332.00
Repaired	2000	33	Holworthy Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	122.36
Repaired	2000	51	Holworthy Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	710.56
Repaired - Owner	2000	20	Stellman Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	100.00
Repaired	2000	30	Starbird Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	79.46
Repaired	2000	38	Starbird Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	190.74
Repaired	2000	79	Elm Hill Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2351.51
Repaired	2000	16	Verona Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	430.99
Repaired	2000	12	Verona Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	462.51
Repaired	2000	68	Seaver Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	598.03
Repaired	2000	18	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2139.63
Repaired	2000	54	Holworthy Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2012.74
Repaired	2000	100	Dale Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	240.17
Repaired	2000	285-287	Centre Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	4128.01
Repaired	2000	76-78	Gordon Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	218.43
Repaired	2000	659	Centre Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	1785.48
Repaired	2000	11	Corey Terrace	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	106.72
Repaired	2000	32	Tennyson Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	205.13
Repaired	2000	31	Tennyson Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	111.92
Repaired	2000	1895	Centre Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	442.05
Repaired	2000	80-90	Glenway Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	429.35
Repaired	2000	21	Michigan Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	178.70
Repaired	2000	92-94	Ellington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2389.93
Repaired	2000	65-69	Nightingale Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	4389.93
Repaired	2000	59	Wales Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	456.33
Repaired	2000	146	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	204.61
Repaired	2000	37	Hastings Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	1499.16
Repaired	2000	90	Greenwood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	254.54
Repaired	2000	270	Park Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	22.67
Repaired	2000	15	Corey Terrace	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	149.09
Repaired	2000	222	Stratford Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	84.07
Repaired	2000	40	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	253.77
Repaired	2000	46	Woodard Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	68.97
Repaired	2000	229	Wren Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	120.10
Repaired	2000	18	Greenwood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	413.17

BOSTON WATER AND SEWER COMMISSION
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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	2000	87	DeForest Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	133.80
Repaired	2000	44	Moraine Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	55.34
Repaired	2000	31	Robin Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	146.93
Repaired	2000	150	Aldrich Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	74.32
Repaired	2000	153	Aldrich Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	171.85
Repaired	2000	138	Aldrich Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	110.67
Repaired	2000	151	Newburg Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	51.11
Repaired - Owner	2000	47	Richwood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	33.20
Repaired	2000	65	Martin Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	233.61
Repaired	2000	110	Colberg Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	289.83
Repaired	1999	25	Granfield Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	532.93
Repaired	1999	88	Hallron Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	98.48
Repaired	1999	12	Murray Hill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	153.56
Repaired	1999	15	Lindall Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	131.51
Repaired	1999	4172	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	564.31
Repaired	1999	74	Saint Rose Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	326.29
Repaired	1999	41	Stellman Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	586.77
Repaired	1999	4150	Washington Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	52.96
Repaired	1999	34	Granfield Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	185.04
Repaired	1999	173	Ruthven Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	189.10
Repaired	1999	161-163	Ruthven Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	823.85
Repaired	1999	167-169	Ruthven Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	239.79
Repaired	1999	11	Dane Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	140.99
Repaired	1999	8-16	Brookley Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	12.91
Repaired	1999	16	Johnswood Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	64.56
Repaired	1999	31	Lindall Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	93.59
Repaired	1999	14	Marcella Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	217.01
Repaired	1999	25	Dalrymple Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	271.38
Repaired	1999	406-408	South Huntington	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	315.41
Repaired	1999	85	Dunster Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	160.47
Repaired	1999	27-29	Dalrymple Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	903.96
Repaired	1999	520	Poplar Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	208.43
Repaired	1999	69	Hawthorne Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	201.05
Repaired	1999	29	Corinth Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	149.59
Repaired	1999	20	Grassmere Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	45.28
Repaired	1999	38	Magee Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	132.80
Repaired	1999	526	Poplar Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	364.47
Repaired	1999	26	Magee Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	47.96
Repaired	1999	78	Hallron Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	181.55
Repaired	1999	528	Poplar Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	89.33
Repaired	1999	1237	River Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2162.98
Repaired	1999	36	Asheville Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	130.96
Repaired	1999	53	Asheville Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	42.39
Repaired	1999	72	Hallron Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	75.22
Repaired	1999	90	Montebello Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	304.34
Repaired	1999	20	Hutchings Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	0.00
Repaired	1999	42	Hutchings Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	503.55
Repaired	1999	55	Montebello Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	376.56
Repaired	1999	26	Stellman Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	408.41
Repaired	1999	51	Montebello Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	605.00
Repaired	1999	18	Granfield Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	56.18
Repaired	1999	6	Sherman Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	285.90
Repaired	1998	1182	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	563.53
Repaired	1996	28	Aldrich Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	386.39
Repaired	1995	1	Greenbrook Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	103.35
Repaired	1995	191	Poplar Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	263.76
Repaired	1995	91	Dale Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	258.23
Repaired	1993	894	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	1005.26
Repaired	1992	59/61	Ainsworth Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	343.74
Repaired	1991	61	Cornell Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	237.94
Repaired	1991	1047	South Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	213.52
Repaired	1990	22	Braewood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	191.57
Repaired	1990	25	Braewood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	73.08
Repaired	1990	790-800	Hyde Park Avenue	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	11548.51
Repaired	1990	241	Cummins Highway	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	435.30
Repaired	1990	6	Mascot Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	129.12
Repaired	1990	104	Deering Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	455.59
Repaired	1990	20	Goodale Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	350.46
Repaired	1990	110	Deering Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	296.97
Repaired	1990	44	Westmore Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	42.42
Repaired	1990	179	Callender Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	23.15
Repaired	1990	7-9	Esmond Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	2445.82
Repaired	1990	182	Callender Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	309.88

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1990	50	Westmore Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	166.01
Repaired	1990	58	Austin Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	175.21
Repaired	1990	14	Braewood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	128.34
Repaired	1990	18	Braewood Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	134.39
Repaired	1988	74	Summer Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	112.99
Repaired	1988	38	Braeburn Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	142.03
Repaired	1987	62	Lodgehill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	212.12
Repaired	1987	83	DeForest Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	186.30
Repaired	1987	10	DeForest Street	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	123.58
Repaired	1987	32	Myopia Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	95.91
Repaired	1987	41	Myopia Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	121.74
Repaired	1987	90	Lodgehill Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	136.49
Repaired	1987	44	Myopia Road	OF 23I 023*	Charles River (Stony Brook Conduit)	Charles River	138.34
Repaired	2005	331	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	235.66
Repaired	2004	344	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	146.56
Repaired	2004	7	Neillian Crescent	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	161.22
Repaired	2004	10	Neillian Crescent	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	83.67
Repaired	2004	11	Neillian Crescent	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	129.18
Repaired - Owner	2001	44	Hemman Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	40.00
Repaired	1999	85	Woodland Road	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	195.33
Repaired	1999	27	Pond Circle	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	293.28
Repaired	1999	1	Cedarwood Road	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	167.85
Repaired	1999	4	Mossdale Road	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	79.31
Repaired	1999	5	Mossdale Road	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	274.83
Repaired	1999	8	Mossdale Road	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	348.61
Repaired	1999	312	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	86.69
Repaired	1999	316	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	49.80
Repaired	1999	324	Pond Street	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	555.20
Repaired	1999	41	Neillian Crescent	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	87.98
Repaired	1999	36	Neillian Crescent	OF 23I 023*	Charles River (Stony Brook Conduit, Goldsmith Brook)	Charles River	95.91
Repaired	2006	161	Charles Street	OF 25J 022*	Charles River	Charles River	
Repaired - Owner	1990	80	Haverhill Street	OF 26J 049*	Charles River	Charles River	73.45
Repaired	2009	1	Sparrow Street	DO 07C 006	Charles River	Charles River/Upper	174.64
Repaired	2009	52	Emmonsdale Road	DO 07C 006	Charles River	Charles River/Upper	139.34
Repaired	2008	57	Birchland Avenue	DO 07C 006	Charles River	Charles River/Upper	163.87
Repaired	2007	195	Saint Theresa Avenue	DO 07C 006	Charles River	Charles River/Upper	157.33
Repaired	2006	159	Glenellen Road	DO 07C 006	Charles River	Charles River/Upper	153.16
Repaired	2006	155	Glenellen Road	DO 07C 006	Charles River	Charles River/Upper	81.65
Repaired	2001	88	Keystone Street	DO 07C 006	Charles River	Charles River/Upper	118.00
Repaired	1997	50	Saint Theresa Avenue	DO 07C 006	Charles River	Charles River/Upper	204.74
Repaired	1997	96	Saint Theresa Avenue	DO 07C 006	Charles River	Charles River/Upper	29.51
Repaired	1996	4	Summer Street	DO 07C 006	Charles River	Charles River/Upper	204.74
Repaired	1996	2171	Centre Street	DO 07C 006	Charles River	Charles River/Upper	278.52
Repaired	1995	135	New Haven Street	DO 07C 006	Charles River	Charles River/Upper	130.78
Repaired	1995	2	Homewood Road	DO 07C 006	Charles River	Charles River/Upper	230.56
Repaired	1995	61	Morrell Street	DO 07C 006	Charles River	Charles River/Upper	228.72
Repaired	1993	189	Stimson Street	DO 07C 006	Charles River	Charles River/Upper	163.79
Repaired	1993	36	Fairlane Road	DO 07C 006	Charles River	Charles River/Upper	131.61
Repaired	1993	10	Joyce Kilmer Road	DO 07C 006	Charles River	Charles River/Upper	33.94
Repaired	1993	36	Gould Street	DO 07C 006	Charles River	Charles River/Upper	49.80
Repaired	1993	85	Cass Street	DO 07C 006	Charles River	Charles River/Upper	106.98
Repaired	1993	90	Cass Street	DO 07C 006	Charles River	Charles River/Upper	158.63
Repaired	1993	103	Cass Street	DO 07C 006	Charles River	Charles River/Upper	95.91
Repaired	1993	2089	Centre Street	DO 07C 006	Charles River	Charles River/Upper	507.24
Repaired	1992	2	Salman Street	DO 07C 006	Charles River	Charles River/Upper	86.14
Repaired	1992	99	Laurie Avenue	DO 07C 006	Charles River	Charles River/Upper	155.49
Repaired	1992	78	Salman Street	DO 07C 006	Charles River	Charles River/Upper	303.79
Repaired	1992	15	Vogel Street	DO 07C 006	Charles River	Charles River/Upper	99.46
Repaired	1992	21	Vogel Street	DO 07C 006	Charles River	Charles River/Upper	42.35
Repaired	1992	87	Salman Street	DO 07C 006	Charles River	Charles River/Upper	162.78
Repaired	1992	16	Crocker Lane	DO 07C 006	Charles River	Charles River/Upper	198.87
Repaired	1991	6	Vogel Street	DO 07C 006	Charles River	Charles River/Upper	153.06
Repaired	1990	53	Laurie Avenue	DO 07C 006	Charles River	Charles River/Upper	95.91
Repaired - Owner	1990	10	Eagle Street	DO 07C 006	Charles River	Charles River/Upper	195.52
Repaired	1990	4	Emmonsdale Road	DO 07C 006	Charles River	Charles River/Upper	300.34
Repaired	1990	57	Laurie Avenue	DO 07C 006	Charles River	Charles River/Upper	197.36
Repaired	1990	48	Laurie Avenue	DO 07C 006	Charles River	Charles River/Upper	311.72
Repaired - Owner	1988	17	Eagle Street	DO 07C 006	Charles River	Charles River/Upper	184.45
Repaired	1987	14	Franclaire Drive	DO 07C 006	Charles River	Charles River/Upper	235.73
Repaired	1987	87	Joyce Kilmer Road	DO 07C 006	Charles River	Charles River/Upper	263.30
Repaired	1987	19	Franclaire Drive	DO 07C 006	Charles River	Charles River/Upper	138.34
Repaired	1987	01	Franclaire Drive	DO 07C 006	Charles River	Charles River/Upper	3.69
Repaired	1987	30	Franclaire Drive	DO 07C 006	Charles River	Charles River/Upper	94.07

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Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1987	85A	Joyce Kilmer Road	DO 07C 006	Charles River	Charles River/Upper	178.92
Repaired	1987	09	Franclaire Drive	DO 07C 006	Charles River	Charles River/Upper	249.01
Repaired	1986	06	New Haven Street	DO 07C 006	Charles River	Charles River/Upper	145.72
Repaired	1986	69	Morrell Street	DO 07C 006	Charles River	Charles River/Upper	355.99
Repaired	1986	65	Morrell Street	DO 07C 006	Charles River	Charles River/Upper	79.31
Repaired	1986	119	Eastwood Circuit	DO 07C 006	Charles River	Charles River/Upper	228.77
Repaired	1986	123	Eastwood Circuit	DO 07C 006	Charles River	Charles River/Upper	86.69
Repaired	1986	129	Eastwood Circuit	DO 07C 006	Charles River	Charles River/Upper	153.09
Repaired - Owner	1990	35	Wycliff Avenue	DO 08B 122	Charles River	Charles River/Upper	223.19
Repaired	1990	9	Moville Street	DO 08B 122	Charles River	Charles River/Upper	22.13
Repaired	1990	4	Moville Street	DO 08B 122	Charles River	Charles River/Upper	178.92
Repaired	1988	203	Spring Street	DO 08B 122	Charles River	Charles River/Upper	204.74
Repaired	1986	75	Caledonian Avenue	DO 08B 126	Charles River	Charles River/Upper	182.61
Repaired	1986	36	Hemlock Road	DO 08B 126	Charles River	Charles River/Upper	165.36
Repaired	1986	37	Hemlock Road	DO 08B 126	Charles River	Charles River/Upper	132.80
Repaired	1986	50	Hemlock Road	DO 08B 126	Charles River	Charles River/Upper	275.11
Repaired	1986	86	Oakmere Street	DO 08B 126	Charles River	Charles River/Upper	177.07
Repaired	1986	40	Laurie Avenue	DO 08B 126	Charles River	Charles River/Upper	53.31
Repaired	1986	60	Hemlock Road	DO 08B 126	Charles River	Charles River/Upper	14.68
Repaired	1986	41	Hemlock Road	DO 08B 126	Charles River	Charles River/Upper	250.85
Repaired	2009	433	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	134.68
Repaired	2009	71	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	104.33
Repaired	2009	153	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	60.80
Repaired	2000	8	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	134.28
Repaired	2000	6	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	274.83
Repaired	2000	12	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	66.40
Repaired	2000	2	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	212.12
Repaired	2000	10	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	140.18
Repaired	1997	1	Cutter Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	44.27
Repaired	1997	22	Varick Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	62.71
Repaired	1997	101	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	127.40
Repaired	1997	112	Chesbrough Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	326.48
Repaired	1997	28	Dow Road	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	140.18
Repaired	1997	6	Amesbury Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	230.56
Repaired	1997	10	Amesbury Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	234.25
Repaired	1997	408	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	167.85
Repaired	1997	412	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	167.85
Repaired	1997	432	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	1161.89
Repaired	1997	448	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	210.27
Repaired	1994	353	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	188.14
Repaired	1993	105	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	123.58
Repaired	1990	74-76	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	169.69
Repaired	1990	111	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	132.80
Repaired	1990	101	Sanborn Avenue	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	158.63
Repaired	1987	359	Baker Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	41.74
Repaired	1987	21A	Baker Place	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	285.90
Repaired	1987	29	Varick Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	230.56
Repaired	1987	25	Varick Street	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	42.42
Repaired	1986	08	Baker Place	DO 11B 123	Charles River (Wetland near West Roxbury High)	Charles River/Upper	92.23
Repaired	2007	16	Keane Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	194.92
Repaired	2007	46	Chilton Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	179.34
Repaired	2004	48	Avalon Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	73.74
Repaired	2003	280	Vermont Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	211.27
Repaired	1998	38	Chilton Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	209.24
Repaired	1998	42	Chilton Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	117.51
Repaired	1998	662	VFW Parkway	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	228.33
Repaired	1998	886	VFW Parkway	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	221.88
Repaired	1998	11	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	123.58
Repaired	1998	50	Farmington Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	89.85
Repaired	1997	16	Bertson Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	145.72
Repaired	1996	34	Westover Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	197.51
Repaired	1994	46	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	332.01
Repaired	1994	81	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	81.16
Repaired	1994	85	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	129.12
Repaired	1994	43	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	98.35
Repaired	1994	68	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	143.69
Repaired	1994	58	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	224.59
Repaired	1994	3	Keane Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	193.67
Repaired	1994	81	Westover Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	99.88
Repaired	1994	20	Mount Vernon Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	921.88
Repaired	1994	15	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	125.43
Repaired	1994	19	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	36.89
Repaired	1994	68A	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	234.25

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1994	48	Potomac Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	119.25
Repaired	1994	53	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	79.02
Repaired	1994	9	Keane Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	60.87
Repaired	1994	47	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	161.73
Repaired	1994	169	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	185.93
Repaired	1994	12	Chellman Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	106.98
Repaired	1994	8	Chellman Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	272.99
Repaired	1994	84	Brookfarm Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	166.01
Repaired	1994	74	Carroll Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	45.06
Repaired	1994	64	Lasell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	330.17
Repaired	1994	77	Westover Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	51.02
Repaired	1994	23	Cricket Lane	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	213.96
Repaired	1993	20	Glenham Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	162.32
Repaired	1993	21	Alameda Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	252.00
Repaired	1993	16	Alameda Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	217.65
Repaired	1990	423	La Grange Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	250.00
Repaired	1990	17	Keane Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	94.07
Repaired	1990	21	Keane Road	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	60.87
Repaired - Owner	1988	55	Dwinell Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	262.73
Repaired	1987	145	Newfield Street	DO 12B 124	Charles River (Brook Farm Brook)	Charles River/Upper	64.04
Repaired - Owner	2007	86	White Street	DO 29M 049	Chelsea Creek	Chelsea Creek	91.24
Repaired	1997	600	Chelsea Street	DO 29N 015	Chelsea Creek	Chelsea Creek	94.42
Repaired - Owner	1992	580	Chelsea Street	DO 29N 015	Chelsea Creek	Chelsea Creek	6298.95
Repaired	2003	477	Meridian Street	OF 29M 013	Chelsea Creek	Chelsea Creek	106.61
Repaired	2003	473	Meridian Street	OF 29M 013	Chelsea Creek	Chelsea Creek	146.68
Repaired	1999	5	Sherman Street	DO 30J 030	Inner Harbor (Mystic River)	Mystic River	146.53
Repaired	1999	90/92	Arlington Street	DO 30J 030	Inner Harbor (Mystic River)	Mystic River	65.68
Repaired	1999	13	Sherman Street	DO 30J 030	Inner Harbor (Mystic River)	Mystic River	75.62
Repaired	1999	9	Sherman Street	DO 30J 030	Inner Harbor (Mystic River)	Mystic River	267.45
Repaired	1999	7	Sherman Street	DO 30J 030	Inner Harbor (Mystic River)	Mystic River	252.70
Repaired	1999	91	Edgemere Road	DMH 06D 097	Unamed Wetlands	Neponset River	121.74
Repaired	1998	66	Edgemere Road	DMH 06D 097	Unamed Wetlands	Neponset River	110.67
Repaired	2009	88	Sprague Street	DO 01E 024	Neponset River	Neponset River	82.24
Repaired	2004	40	Colchester Street	DO 01F 031	Neponset River	Neponset River	220.82
Repaired	2007	1852	Hyde Park Avenue	DO 02F 120	Neponset River	Neponset River	217.98
Repaired	2007	1853	Hyde Park Avenue	DO 02F 120	Neponset River	Neponset River	167.40
Repaired	1995	31	Danny Road	DO 03E 185	Neponset River (Mother Brook)	Neponset River	126.68
Repaired	1995	41	Como Road	DO 03E 185	Neponset River (Mother Brook)	Neponset River	199.35
Repaired	1990	140	Parkway	DO 04E 069	Neponset River (Mother Brook)	Neponset River	390.72
Repaired	2009	5-7	Mason Street	DO 04F 118	Neponset River	Neponset River	327.38
Repaired	1992	1520	Hyde Park Avenue	DO 04F 118	Neponset River	Neponset River	196.77
Repaired	2006	1628	Hyde Park Avenue	DO 04F 119	Neponset River	Neponset River	4965.14
Repaired	1994	148	Glenwood Avenue	DO 04F 203	Neponset River	Neponset River	269.00
Repaired	1994	143	Glenwood Avenue	DO 04F 203	Neponset River	Neponset River	203.85
Repaired	2007	22	Garfield Avenue	DO 04F 204	Neponset River	Neponset River	177.30
Repaired	2006	27	Brush Hill Terrace	DO 04F 204	Neponset River	Neponset River	118.25
Repaired	2006	137	Dana Avenue	DO 04F 204	Neponset River	Neponset River	73.30
Repaired	1996	74	Loring Street	DO 04F 204	Neponset River	Neponset River	327.84
Repaired	1994	43	Chittick Street	DO 04F 204	Neponset River	Neponset River	182.61
Repaired	1994	36	Chittick Street	DO 04F 204	Neponset River	Neponset River	36.34
Repaired	2009	15	Williams Avenue	DO 05F 117	Neponset River	Neponset River	161.48
Repaired	1997	6	Dana Avenue	DO 05F 245	Neponset River (Mother Brook)	Neponset River	309.75
Repaired	1995	18	Warren Park	DO 05G 116A	Neponset River	Neponset River	180.76
Repaired	1995	10	Warren Park	DO 05G 116A	Neponset River	Neponset River	169.69
Repaired	1993	6	Warren Street	DO 05G 116A	Neponset River	Neponset River	250.00
Repaired	1990	101	Warren Avenue	DO 05G 116A	Neponset River	Neponset River	147.56
Repaired	1988	06	Milton Terrace	DO 05G 116A	Neponset River	Neponset River	507.24
Repaired	1988	32	Lochland Road	DO 05G 116A	Neponset River	Neponset River	80.66
Repaired	1988	35	Lochland Road	DO 05G 116A	Neponset River	Neponset River	70.09
Repaired	1987	234	Fairmount Avenue	DO 05G 116A	Neponset River	Neponset River	245.32
Repaired	2006	35	Freeman Avenue	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	96.20
Repaired	2006	11	Stimson Street	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	149.75
Repaired	2006	5175	Washington Street	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	48.24
Repaired	1996	40	Carrolton Road	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	189.98
Repaired	1993	25	Rockland Street	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	814.96
Repaired	1992	35	Goethe Street	DO 06D 187	Neponset River (Brook @ Grove Street)	Neponset River	250.00
Repaired	2009	75	Farrar Avenue	DO 06G 108	Neponset River	Neponset River	70.27
Repaired	2009	21	Derry Road	DO 06G 108	Neponset River	Neponset River	231.29
Repaired	2009	150	Westminster Street	DO 06G 108	Neponset River	Neponset River	133.14
Repaired	2009	25	Derry Road	DO 06G 108	Neponset River	Neponset River	91.99
Repaired	2008	10	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	206.44
Repaired	2007	44	Frazer Street	DO 06G 108	Neponset River	Neponset River	121.09
Repaired	1993	27	Pinewood Street	DO 06G 108	Neponset River	Neponset River	236.10

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Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1990	13	Joyce Road	DO 06G 108	Neponset River	Neponset River	136.49
Repaired	1990	255	Kennebec Street	DO 06G 108	Neponset River	Neponset River	59.34
Repaired	1990	4	Crown Street	DO 06G 108	Neponset River	Neponset River	250.00
Repaired	1990	54	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	62.71
Repaired	1990	248	Kennebec Street	DO 06G 108	Neponset River	Neponset River	122.73
Repaired	1990	263	Kennebec Street	DO 06G 108	Neponset River	Neponset River	127.27
Repaired	1990	1	Crown Street	DO 06G 108	Neponset River	Neponset River	180.76
Repaired	1990	50	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	39.84
Repaired	1990	25	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	240.87
Repaired	1990	246	Kennebec Street	DO 06G 108	Neponset River	Neponset River	129.12
Repaired	1990	251	Kennebec Street	DO 06G 108	Neponset River	Neponset River	105.14
Repaired	1988	34	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	112.51
Repaired	1988	46	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	112.51
Repaired	1988	62	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	24.20
Repaired	1988	02	Roseglen Road	DO 06G 108	Neponset River	Neponset River	226.41
Repaired	1988	09	Joyce Road	DO 06G 108	Neponset River	Neponset River	111.68
Repaired	1988	296	Wood Avenue	DO 06G 108	Neponset River	Neponset River	309.88
Repaired	1988	26	Lewiston Street	DO 06G 108	Neponset River	Neponset River	112.51
Repaired	1988	58	Birchcroft Road	DO 06G 108	Neponset River	Neponset River	65.52
Repaired	1987	88	Tacoma Street	DO 06G 108	Neponset River	Neponset River	237.94
Repaired	1990	475	Huntington Avenue	DO 06G 109	Neponset River	Neponset River	156.91
Repaired	1990	463	Huntington Avenue	DO 06G 109	Neponset River	Neponset River	168.86
Repaired	2009	56	Arlington Street	DO 06G 110	Neponset River	Neponset River	103.45
Repaired - Owner	1995	1060	River Street	DO 06G 110	Neponset River	Neponset River	278.30
Repaired	2009	14	Brushwood Circle	DO 06G 111	Neponset River	Neponset River	133.90
Repaired	2009	6	Brushwood Circle	DO 06G 111	Neponset River	Neponset River	116.65
Repaired	1996	39	New Bedford Street	DO 06G 166	Neponset River	Neponset River	101.45
Repaired	2009	101	Almont Street	DO 07H 105	Neponset River	Neponset River	154.86
Repaired	2009	66	Wood Avenue	DO 07H 105	Neponset River	Neponset River	138.58
Repaired	2009	65	Wood Avenue	DO 07H 105	Neponset River	Neponset River	224.17
Repaired	2008	44	Alabama Street	DO 07H 105	Neponset River	Neponset River	417.61
Repaired	2007	9	Mariposa Street	DO 07H 105	Neponset River	Neponset River	186.30
Repaired	2007	602	Walk Hill Street	DO 07H 105	Neponset River	Neponset River	184.89
Repaired	2007	217	Kennebec Road	DO 07H 105	Neponset River	Neponset River	93.74
Repaired	2004	640	Cummins Highway	DO 07H 105	Neponset River	Neponset River	154.74
Repaired	2001	745	River Street	DO 07H 105	Neponset River	Neponset River	72.59
Repaired	1998	70	Fairlawn Avenue	DO 07H 105	Neponset River	Neponset River	9868.11
Repaired	1996	52	Rosemont Street	DO 07H 105	Neponset River	Neponset River	95.91
Repaired	1995	11	Corman Road	DO 07H 105	Neponset River	Neponset River	22.13
Repaired	1995	658	Cummins Highway	DO 07H 105	Neponset River	Neponset River	151.25
Repaired	1995	50	Orlando Street	DO 07H 105	Neponset River	Neponset River	486.51
Repaired	1995	101	Mattapan Street	DO 07H 105	Neponset River	Neponset River	250.24
Repaired	1995	17	Hallowell Street	DO 07H 105	Neponset River	Neponset River	73.41
Repaired	1995	57	Greenfield Street	DO 07H 105	Neponset River	Neponset River	123.18
Repaired	1995	151	Almont Street	DO 07H 105	Neponset River	Neponset River	112.51
Repaired	1995	155	Almont Street	DO 07H 105	Neponset River	Neponset River	592.09
Repaired	1995	144	Hazelton Street	DO 07H 105	Neponset River	Neponset River	208.43
Repaired	1995	113	Mattapan Street	DO 07H 105	Neponset River	Neponset River	330.17
Repaired	1995	159	Almont Street	DO 07H 105	Neponset River	Neponset River	140.18
Repaired	1995	163	Almont Street	DO 07H 105	Neponset River	Neponset River	38.73
Repaired	1995	183	Almont Street	DO 07H 105	Neponset River	Neponset River	271.73
Repaired	1995	89	Taunton Avenue	DO 07H 105	Neponset River	Neponset River	481.42
Repaired	1995	52	Ralston Road	DO 07H 105	Neponset River	Neponset River	66.40
Repaired	1995	30	Ralston Road	DO 07H 105	Neponset River	Neponset River	171.15
Repaired	1995	10	Corman Road	DO 07H 105	Neponset River	Neponset River	150.66
Repaired	1995	122	Taunton Avenue	DO 07H 105	Neponset River	Neponset River	250.48
Repaired	1995	107	Taunton Avenue	DO 07H 105	Neponset River	Neponset River	114.36
Repaired	1995	66	Pleasantview Street	DO 07H 105	Neponset River	Neponset River	90.38
Repaired	1994	4	Caton Street	DO 07H 105	Neponset River	Neponset River	85.68
Repaired	1994	36	Ralston Road	DO 07H 105	Neponset River	Neponset River	361.52
Repaired	1994	60	Ralston Road	DO 07H 105	Neponset River	Neponset River	381.81
Repaired	1994	56	Ralston Road	DO 07H 105	Neponset River	Neponset River	393.14
Repaired	1993	718	Cummins Highway	DO 07H 105	Neponset River	Neponset River	407.36
Repaired	1993	34	Sefton Street	DO 07H 105	Neponset River	Neponset River	202.90
Repaired	1993	655	River Street	DO 07H 105	Neponset River	Neponset River	245.32
Repaired	1993	679	River Street	DO 07H 105	Neponset River	Neponset River	571.80
Repaired	1993	722	Cummins Highway	DO 07H 105	Neponset River	Neponset River	194.17
Repaired	1993	17	Favre Street	DO 07H 105	Neponset River	Neponset River	308.03
Repaired	1993	699	Cummins Highway	DO 07H 105	Neponset River	Neponset River	271.14
Repaired	1993	11	Favre Street	DO 07H 105	Neponset River	Neponset River	455.59
Repaired	1993	654	River Street	DO 07H 105	Neponset River	Neponset River	164.16
Repaired	1993	89	Woodhaven Street	DO 07H 105	Neponset River	Neponset River	328.49
Repaired	1992	92	Greenfield Street	DO 07H 105	Neponset River	Neponset River	186.37

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Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1992	14	Alabama Street	DO 07H 105	Neponset River	Neponset River	332.01
Repaired	1992	75	Ruskindale Road	DO 07H 105	Neponset River	Neponset River	134.65
Repaired	1992	14	Rockingham Road	DO 07H 105	Neponset River	Neponset River	222.91
Repaired	1992	48/50	Rockingham Road	DO 07H 105	Neponset River	Neponset River	298.81
Repaired	1992	84	Ruskindale Road	DO 07H 105	Neponset River	Neponset River	202.90
Repaired	1992	94	Woodhaven Street	DO 07H 105	Neponset River	Neponset River	425.71
Repaired	1992	85	Ruskindale Road	DO 07H 105	Neponset River	Neponset River	160.10
Repaired	1990	157	Savannah Avenue	DO 07H 105	Neponset River	Neponset River	189.98
Repaired	1990	15	Mariposa Street	DO 07H 105	Neponset River	Neponset River	121.74
Repaired	1990	21	Mariposa Street	DO 07H 105	Neponset River	Neponset River	258.23
Repaired	1990	119	Hollingsworth Street	DO 07H 105	Neponset River	Neponset River	42.04
Repaired	1990	109	Hollingsworth Street	DO 07H 105	Neponset River	Neponset River	66.40
Repaired	1990	15	Corman Road	DO 07H 105	Neponset River	Neponset River	689.85
Repaired	1990	115	Hollingsworth Street	DO 07H 105	Neponset River	Neponset River	36.89
Repaired	1990	105	Hollingsworth Street	DO 07H 105	Neponset River	Neponset River	81.16
Repaired	1988	22	Rockingham Road	DO 07H 105	Neponset River	Neponset River	158.63
Repaired	1988	36	Rockingham Road	DO 07H 105	Neponset River	Neponset River	156.78
Repaired	1987	6	Croyden Street	DO 07H 105	Neponset River	Neponset River	142.03
Repaired	1987	201	Savannah Street	DO 07H 105	Neponset River	Neponset River	507.24
Repaired	1987	265	Itasca Street	DO 07H 105	Neponset River	Neponset River	166.65
Repaired	1987	28	Ralston Road	DO 07H 105	Neponset River	Neponset River	160.47
Repaired	1987	95-97	Hollingsworth Street	DO 07H 105	Neponset River	Neponset River	4.33
Repaired	1987	09	Favre Street	DO 07H 105	Neponset River	Neponset River	501.10
Repaired	1987	07	Alabama Street	DO 07H 105	Neponset River	Neponset River	177.70
Repaired	1987	08	Wabash Street	DO 07H 105	Neponset River	Neponset River	99.60
Repaired	1987	63	Colorado Street	DO 07H 105	Neponset River	Neponset River	420.84
Repaired	1987	20	Monterey Avenue	DO 07H 105	Neponset River	Neponset River	210.27
Repaired	2007	658	Walk Hill Street	DO 07H 285	Neponset River	Neponset River	150.48
Repaired	2007	34	Glenhill Road	DO 07H 285	Neponset River	Neponset River	61.74
Repaired	2007	8	Wilmington Avenue	DO 07H 285	Neponset River	Neponset River	84.80
Repaired	2006	29	Rich Street	DO 07H 285	Neponset River	Neponset River	84.71
Repaired	2006	26	Rich Street	DO 07H 285	Neponset River	Neponset River	74.99
Repaired	2006	25	Rich Street	DO 07H 285	Neponset River	Neponset River	201.84
Repaired	1999	912	Morton Street	DO 07H 285	Neponset River	Neponset River	302.04
Repaired	1993	557	Norfolk Street	DO 07H 285	Neponset River	Neponset River	362.81
Repaired	1993	555	Norfolk Street	DO 07H 285	Neponset River	Neponset River	144.79
Repaired	1992	173	Delhi Street	DO 07H 285	Neponset River	Neponset River	475.88
Repaired	1990	915	Morton Street	DO 07H 285	Neponset River	Neponset River	3305.54
Repaired	1990	502	Norfolk Street	DO 07H 285	Neponset River	Neponset River	606.84
Repaired	1990	510	Norfolk Street	DO 07H 285	Neponset River	Neponset River	651.11
Repaired	1990	19-21	Fessenden Street	DO 07H 285	Neponset River	Neponset River	933.23
Repaired	1990	939	Morton Street	DO 07H 285	Neponset River	Neponset River	723.05
Repaired	1990	19	Evelyn Street	DO 07H 285	Neponset River	Neponset River	101.45
Repaired	2009	18	Ledgebrook Road	DO 08I 207	Neponset River	Neponset River	171.31
Repaired	1999	2293	Dorchester Avenue	DO 08J 102	Neponset River	Neponset River	271.66
Repaired	1992	1216	Dorchester Avenue	DO 08J 102	Neponset River	Neponset River	3455.31
Repaired - Owner	2009	57	Stockton Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	56.76
Repaired	2009	679	Adams Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	75.65
Repaired	2009	36	Saranac Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	986.04
Repaired	2009	145-143	Minot Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	161.51
Repaired - Owner	2009	68	Stockton Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	14.00
Repaired	2008	137	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	157.89
Repaired	2008	149	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	39.27
Repaired	2008	141	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	155.66
Repaired	2008	165	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	128.18
Repaired	2008	145	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	107.84
Repaired	2007	145	Ashmont Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	165.72
Repaired	2007	46-48	Franconia Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	313.07
Repaired	2007	683	Adams Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	152.75
Repaired	2007	919	Washington Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	553.26
Repaired	2007	48	Burt Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	292.14
Repaired	2007	44	Valley Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	285.71
Repaired	2007	17-19	Ogden Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	447.09
Repaired	2007	276	Ashmont Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	45.02
Repaired	2007	42	Avondale Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	174.81
Repaired	2007	18	Barna Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	58.70
Repaired	2007	40	Valley Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	64.84
Repaired	2006	35	Range Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	84.20
Repaired	2006	19	Rangeley Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	151.42
Repaired	2006	69	Mercier Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	175.22
Repaired	2003	1135	Morton Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	1301.30
Repaired	2003	211	Ashmont Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	102.31
Repaired	1998	924	Washington Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	46.19

BOSTON WATER AND SEWER COMMISSION
ILLEGAL CONNECTION REMEDIATION PROGRAM

Table 8 - 1: Illegal Connection Corrected 1986 - 2009

Corrected By:	Year Corrected	Street Number	Street	Outfall Number	Receiving Water	Watershed	Sewage Removed (gpd)
Repaired	1998	920/922	Washington Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	310.84
Repaired	1995	61	Mercier Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	53.49
Repaired	1995	59	Mercier Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	81.05
Repaired	1995	55	Mercier Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	177.99
Repaired	1994	710	Gallivan Boulevard	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	1033.88
Repaired	1994	827/831	Washington Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	1033.88
Repaired	1994	6	Morton Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	693.53
Repaired	1994	12	Countryside Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	164.16
Repaired	1994	12	Codman Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	153.09
Repaired	1994	13B	Codman Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	154.37
Repaired	1994	905	Washington Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	109.19
Repaired	1994	23	Mora Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	1001.49
Repaired	1992	76	Mora Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	360.82
Repaired	1990	15	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	105.47
Repaired	1990	50	Clearwater Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	125.43
Repaired	1990	14	Druid Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	16.60
Repaired	1990	3	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	27.67
Repaired	1990	15	Ellison Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	103.29
Repaired	1990	11	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	88.17
Repaired	1990	25	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	68.01
Repaired	1990	29	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	154.92
Repaired	1990	33	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	300.65
Repaired	1990	41	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	158.63
Repaired	1990	7	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	258.23
Repaired	1990	15-17	Pleasant Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	227.61
Repaired	1990	38-40	Pleasant Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	357.83
Repaired	1990	23	Ellison Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	278.52
Repaired	1990	9-11	Pleasant Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	159.18
Repaired	1990	37	Codman Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	286.67
Repaired	1990	27-29	Pleasant Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	426.08
Repaired	1990	51	Roslin Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	422.34
Repaired	1990	26-28	Pleasant Hill Avenue	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	213.96
Repaired	1990	45	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	143.21
Repaired	1990	122	Elmer Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	176.85
Repaired	1990	19	Driscoll Drive	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	243.47
Repaired	1990	68	Saint Brendan Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	263.03
Repaired	1990	50	Rita Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	271.05
Repaired	1990	46	Rita Road	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	284.05
Repaired	1987	62	Stockton Street	DO 10L 094	Neponset River (Davenport Brook)	Neponset River	212.12
Repaired - Owner	2009	21	Levant Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	372.04
Repaired	2007	15	Mapes Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	71.47
Repaired - Owner	2007	33	Regina Road	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	850.33
Repaired	2003	46	Manor Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	79.89
Repaired	2003	105	Homes Avenue	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	
Repaired	2003	1544	Dorchester Avenue	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	551.78
Repaired	2003	55	Auriga Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	193.67
Repaired	1996	80/82	Christopher Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	250.00
Repaired	1994	34	Mallon Road	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	206.94
Repaired	1993	63	Semont Road	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	534.91
Repaired	1992	58	Whitten Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	315.23
Repaired	1992	80	Florida Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	1931.94
Repaired	1992	61	Whitten Street	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	405.79
Repaired - Owner	1990	57-65	Victory Road	DO 13L 090	Neponset River/Dorchester Bay	Neponset River	737.80

TOTAL SEWAGE REMOVED 1986 - 2009							567216.50

Table 8 - 2
Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06173	36-50	POYDRAS ST	HYDE	12/23/2009
09257	36	BELLE AV	WROX	12/21/2009
09249	723	EAST SECOND ST	SBOS	12/14/2009
09222	244	NEWBURY ST	BBBH	12/10/2009
09201	56	DWIGHT ST	SEND	12/8/2009
09241	342	E ST	SBOS	12/7/2009
09254	56	BERKELEY ST	SEND	12/7/2009
09149	29	NEPONSET FIELD LN	HYDE	12/4/2009
08304	255-257	NORTHAMPTON ST	SEND	12/4/2009
09248	223	WEST SIXTH ST	SBOS	12/4/2009
09236	59	PUTNAM ST	EBOS	11/24/2009
09243	109	NEWBURY ST	BBBH	11/24/2009
05161	216R	MARGINAL ST	EBOS	11/24/2009
09253	235	BUNKER HILL ST	CHAR	11/24/2009
09234		BEACON ST	BBBH	11/24/2009
09157	1272-1300	BOYLSTON ST	FEKE	11/20/2009
08349	91	DRESSER ST	SBOS	11/19/2009
09185	15	UNION ST	CHAR	11/16/2009
09220	60	NORTHERN AV	SBOS	11/16/2009
09226	51-67	STUART ST	CENT	11/13/2009
09229	5, 5A, 5B	MINTON ST	ROXB	11/12/2009
08203	62-68	CUMMINGS RD	ALBR	11/7/2009
09009	189-221	EUSTON PATH	ALBR	11/6/2009
09216	20	MONTMORENCI AV	EBOS	11/6/2009
09217	28	MONTMORENCI AV	EBOS	11/6/2009
09030	456	WEST FOURTH ST	SBOS	11/6/2009
07319	646	BLUE HILL AV	ROXB	11/6/2009
09223	15-17	HILBURN PL	ROSL	11/3/2009
06070	1100	VFW PKWY	WROX	10/30/2009
09113	65R	BOSTON ST	SBOS	10/30/2009
09165	510	HYDE PARK AV	HYDE	10/28/2009
09172	1154-1156	DORCHESTER AV	NDOR	10/28/2009
09208	425	FANEUIL ST	ALBR	10/26/2009
09102	303	COMMONWEALTH AV	BBBH	10/21/2009
09215	55, 57, 59	CIRCUIT ST	ROXB	10/20/2009
09012	26	EXETER ST	BBBH	10/19/2009
08082	28A & 28B	MOUNT VERNON ST	NDOR	10/15/2009
09188	1071	MASSACHUSETTS AV	NDOR	10/13/2009
09203	16	IVORY ST	WROX	10/13/2009
09205	61	CIRCUIT ST	ROXB	10/13/2009
09181	74	FENWOOD RD	JAPL	10/5/2009
09093	164-166	TERRACE ST	ROXB	10/1/2009
08163	770-774	EAST THIRD ST	SBOS	9/23/2009
09129	343	NEWBURY ST	BBBH	9/21/2009
08320	1-9	MALLARD AV	SDOR	9/21/2009
08150	2	PALACE RD	FEKE	9/21/2009
09187	1506	COLUMBIA RD	SBOS	9/21/2009
09122	248	CHESTNUT AV	JAPL	9/21/2009
08058	16A	MEEHAN ST	JAPL	9/17/2009
08199	26	PONTIAC ST	JAPL	9/14/2009
09077	20	SOUTH ST	JAPL	9/14/2009
09142	302	EUSTIS ST	ROXB	9/8/2009
09167	211	NEWBURY ST	BBBH	9/3/2009
07038	10	BOND ST	SEND	9/3/2009
09033	27	TELEGRAPH ST	SBOS	9/2/2009
09022	2400	WASHINGTON ST	ROXB	8/28/2009
09007	1188	DORCHESTER AV	NDOR	8/27/2009
09105	54	FENWAY	FEKE	8/24/2009
09134	349	MARLBOROUGH ST	BBBH	8/19/2009
09118	234-236	NEWBURY ST	BBBH	8/12/2009
09140	60	NEWFIELD ST	WROX	8/11/2009
09100	1137	RIVER ST	BBBH	8/10/2009
09110	404	BEACON ST	BBBH	8/10/2009
07402	892	RIVER ST	HYDE	8/2/2009
09116	21-27	ANTWERP ST	ALBR	7/27/2009

Table 8 - 2
Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
09091	2730	WASHINGTON ST	ROXB	7/24/2009
09094	2-34	FIDELIS WY	ALBR	7/24/2009
08215	192	WASHINGTON ST	SDOR	7/22/2009
08120	12	UNION PARK	SEND	7/21/2009
09135	56	BELLE AV	WROX	7/20/2009
09123	372	RUGGLES ST	FEKE	7/19/2009
09019	12	SPRING ST	WROX	7/19/2009
06055	43, 45	MONTEBELLO RD	ROXB	7/19/2009
09087	555	COLUMBUS AV	SEND	7/16/2009
08292	171-173	WEST FOURTH ST	SBOS	7/16/2009
09073	70	HICHBORN ST	ALBR	7/15/2009
09086	1230	VFW PKWY	WROX	7/14/2009
09059	276-278	NEWBURY ST	BBBH	7/7/2009
08294	207	MARKET ST	ALBR	7/6/2009
09103	28-30	UNION PARK	SEND	6/29/2009
09037	238	SAINT BOTOLPH ST	FEKE	6/24/2009
09108	433	SHAWMUT AV	SEND	6/22/2009
09107	4600	WASHINGTON ST	ROSL	6/22/2009
09098	88-90	BREMEN ST	EBOS	6/19/2009
09089	66	FENWAY	FEKE	6/17/2009
08347	1415	HYDE PARK AV	HYDE	6/11/2009
08291	39	UNION PARK	SEND	6/8/2009
09053	650	DUDLEY ST	NDOR	6/8/2009
07346	2	WOODWORTH ST	SDOR	6/1/2009
08296	655-659	TREMONT ST	SEND	6/1/2009
08246	150	CHESTNUT HILL AV	ALBR	6/1/2009
08332	7	HAVILAND ST	FEKE	5/30/2009
08065	27-31	HEMENWAY ST	FEKE	5/26/2009
09071	44	BRADFORD ST	SEND	5/22/2009
08218	1135	MORTON ST	MATP	5/20/2009
08211	3-5, 7-9	MORSE ST	ROXB	5/19/2009
09068	2	I ST	SBOS	5/15/2009
08212	78-84	STOUGHTON ST	NDOR	5/14/2009
08207	3294-3304	WASHINGTON ST	ROXB	5/14/2009
08208	3316-3322	WASHINGTON ST	ROXB	5/14/2009
08209	9-15	WALK HILL ST	MATP	5/14/2009
08206	48-56	SCHOOL ST	ROXB	5/13/2009
09060	177	NEWBURY ST	BBBH	5/11/2009
08273	111-115	NEWBURY ST	BBBH	5/8/2009
09070	125-127	BROOKS ST	ALBR	5/4/2009
09041	38-40-42	UPTON ST	SEND	5/4/2009
09064	11	PETER PARLEY RD	ROXB	4/30/2009
08192	82-84	ALLEGHANY ST	JAPL	4/30/2009
09079	1-3	CHARLES RIVER SQ	BBBH	4/30/2009
09042	39	FAIRFIELD ST	BBBH	4/29/2009
09055	92	SAINT BOTOLPH ST	BBBH	4/28/2009
09054	172	GREEN ST	JAPL	4/22/2009
07197	788	EAST BROADWAY	SBOS	4/21/2009
09067	106	BOSTON ST	SBOS	4/10/2009
03146	144	WORDSWORTH ST	EBOS	4/10/2009
09049	1090	BOYLSTON PL	CENT	4/8/2009
09066	8	WENDELLER ST	SBOS	4/8/2009
09035	26	SAINT ALBANS RD	JAPL	4/8/2009
09039	28	SAINT ALBANS RD	JAPL	4/7/2009
09056	190	BEACON ST	ALBR	4/2/2009
09047	12	CONWAY ST	ROSL	4/1/2009
08248	2-6	BEECHLAND ST	ROSL	3/31/2009
09051	28	ARLINGTON ST	HYDE	3/30/2009
09017	1150	SARATOGA ST	EBOS	3/25/2009
08357	85	REGENT ST	ROXB	3/23/2009
09005	625	HUNTINGTON AV	FEKE	3/20/2009
06251	7	COMMONWEALTH AV	ALBR	3/20/2009
09044	72	ALLEGHANY ST	JAPL	3/6/2009
08352	950	METROPOLITAN AV	HYDE	3/6/2009
09038	424-430	WEST FOURTH ST	SBOS	2/25/2009

Table 8 - 2
Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
09032	37-39	PERTHSHIRE RD	ALBR	2/22/2009
09015	36-38	RUSSELL ST	CHAR	2/18/2009
08187	38-48	DAMRELL ST	SBOS	2/11/2009
09018	31.5	DWIGHT ST	SEND	2/10/2009
09020	86-90	LITCHFIELD ST	ALBR	2/9/2009
09027	26-30	DORR ST	ROXB	2/9/2009
09010	304	BEACON ST	BBBH	2/9/2009
09002	887	HARRISON AV	SEND	2/5/2009
08029	102-104	DENT ST	WROX	2/1/2009
09013	263	NEWBURY ST	BBBH	1/28/2009
08289	45-47	COMMONWEALTH AV	BBBH	1/13/2009
08307	160-162	RIVERWAY	FEKE	1/8/2009
08184	750	DORCHESTER AV	NDOR	1/8/2009
08326	815	ALBANY ST	SEND	1/7/2009
08361	152	WOOD AV	HYDE	1/6/2009
08355	228	WEST CANTON ST	BBBH	1/6/2009
08262	188-196	FOSTER ST	ALBR	1/6/2009
08106	480	RUTHERFORD AV	CHAR	12/31/2008
07275	13-41	LANSDOWNE ST	FEKE	12/31/2008
08155	1-35	KINGBIRD RD	MATP	12/24/2008
08051	29a-d	HUMPHREYS ST	NDOR	12/17/2008
07195	235	WOODROW AV	MATP	12/17/2008
08297	81	CHESTNUT ST	BBBH	12/15/2008
08343	385-389	HYDE PARK AV	ROSL	12/10/2008
08344	46	BELLE AV	WROX	12/10/2008
08314	24-36	ROCKLAND ST	ROXB	12/4/2008
08327	1047	COMMONWEALTH AV	ALBR	12/4/2008
08333	59R	ENTERPRISE ST	NDOR	11/26/2008
07269	70	SOUTH BAY AV	NDOR	11/26/2008
08325	1265	BOYLSTON ST	FEKE	11/25/2008
08303	5	COMMONWEALTH AV	BBBH	11/24/2008
07297	14, 16, 18	LOCUST ST	NDOR	11/20/2008
08090	26	CHESTERTON ST	ROXB	11/19/2008
08319	379-383	HYDE PARK AV	ROSL	11/14/2008
08315	435	BEACON ST	BBBH	11/13/2008
08240	51-59	STUART ST	BBBH	11/13/2008
08158	10	ROMSEY ST	NDOR	11/13/2008
08316	166	WEST BROOKLINE ST	SEND	11/12/2008
08043	30	UNDINE RD	ALBR	11/12/2008
08204	4-6	NEWBURY ST	BBBH	11/10/2008
08188	140-156	WESTERN AV	ALBR	11/6/2008
07390	233	BLUE HILL AV	ROXB	11/6/2008
07076	736	CAMBRIDGE ST	ALBR	11/5/2008
06246		HARVARD ST	SDOR	11/5/2008
08317	20	REED ST	SEND	10/31/2008
07328	2	NESSLE WY	FEKE	10/31/2008
08072	940-980	AMERICAN LEGION HWY	ROSL	10/31/2008
08093	122	ARLINGTON ST	CENT	10/30/2008
08214	125	CHARLES ST	BBBH	10/28/2008
06096	89-119	CANAL ST	CENT	10/27/2008
07272	34	ROCKNE AV	SDOR	10/27/2008
08205	9	BUCKNAM ST	JAPL	10/27/2008
08198	30-32	PONTIAC ST	JAPL	10/24/2008
08197	34-36	PONTIAC ST	JAPL	10/24/2008
08276	32	UPTON ST	SEND	10/23/2008
08295	40-42	UNION AV	JAPL	10/23/2008
08270	61	DARTMOUTH ST	SEND	10/21/2008
08249	1-5	EXETER ST	BBBH	10/21/2008
08185	204	WEST SPRINGFIELD ST	SEND	10/16/2008
08251	62 & 64	PONTIAC ST	JAPL	10/16/2008
08272	12	CAZENOVE ST	SEND	10/6/2008
07420	304-308	ATHENS ST	SBOS	10/5/2008
08213	46	WASHINGTON ST	CHAR	10/1/2008
08234	531-535	EAST THIRD ST	SBOS	10/1/2008
08012	255	MARLBOROUGH ST	BBBH	9/25/2008

Table 8 - 2
Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
08174	493-495	COMMONWEALTH AV	FEKE	9/25/2008
08165	35	PARLEY AV	JAPL	9/22/2008
08217	7	MOUNT VERNON AV	CHAR	9/19/2008
08131	34	HARTFORD ST	ROXB	9/16/2008
08153	460	WALK HILL ST	MATP	9/15/2008
08115	101	GREEN ST	JAPL	9/15/2008
08133	839	EAST SECOND ST	SBOS	9/12/2008
08166	25	HIGHLAND PARK AV	ROXB	9/12/2008
08194	25-27	CHEROKEE ST	JAPL	9/10/2008
08195	39-41	CHEROKEE ST	JAPL	9/9/2008
08190	62-64	ALLEGHANY ST	JAPL	9/9/2008
08191	66-68	ALLEGHANY ST	JAPL	9/9/2008
08073	160-168	FAYWOOD AV	EBOS	9/9/2008
08193	23	CHEROKEE ST	JAPL	9/9/2008
08154	8	PARKMAN ST	SDOR	9/8/2008
08239	178	WEST FOURTH ST	SBOS	9/5/2008
08057	725	ALBANY ST	SEND	9/3/2008
08045	354-364	LONGWOOD AV	FEKE	9/3/2008
08168	27	MIDDLE ST	SBOS	8/29/2008
08142	117	PARKER HILL AV	JAPL	8/28/2008
08176	465	HUNTINGTON AV	BBBH	8/28/2008
08229	383	DORCHESTER ST	SBOS	8/27/2008
08219	64	LOUIS PRANG ST	FEKE	8/22/2008
07263	10	WAINWRIGHT ST	SDOR	8/22/2008
07005	1-1E	HADLEY ST	CHAR	8/22/2008
08225	19	NORWOOD ST	SDOR	8/22/2008
08152	27A	LAWRENCE ST	SEND	8/18/2008
08130	237	NEPONSET AV	SDOR	8/13/2008
07371	345	OLD COLONY AV	SBOS	8/13/2008
08134	250	NEW RUTHERFORD AV	CHAR	8/13/2008
07372	265	EAST NINTH ST	SBOS	8/13/2008
07233	368	CONGRESS ST	SBOS	8/11/2008
08087	181	WEST BROOKLINE ST	SEND	8/6/2008
08101	100	SWIFT ST	EBOS	8/1/2008
08129	44	COLEMAN ST	NDOR	8/1/2008
08159	216	BEACON ST	BBBH	7/29/2008
08110	13	BYRON ST	BBBH	7/24/2008
08186	79	WARREN AV	SEND	7/23/2008
08151	19	HANSON ST	SEND	7/16/2008
08140	326	A ST	SBOS	7/11/2008
07225	845	LA GRANGE ST	WROX	7/10/2008
07403	186	WALTER ST	ROSL	7/9/2008
08034	9	GARDNER ST	ALBR	7/9/2008
04362	88	EVERETT ST	EBOS	7/8/2008
08141	10-12	LARCH PL	ROSL	7/8/2008
08135	42	MCKONE ST	SDOR	7/7/2008
08148	28	MOUNT VERNON ST	ALBR	7/7/2008
08121	30	TOPALIAN ST	MATP	7/7/2008
08132	231	BROOKS ST	EBOS	7/3/2008
07159	32	RUTLAND ST	SEND	7/2/2008
08116	458	WALK HILL ST	MATP	6/30/2008
07418	633	CENTRE ST	JAPL	6/25/2008
08066	103	PILGRIM RD	FEKE	6/25/2008
08018	47	WARREN AV	SEND	6/23/2008
06048	465	HUNTINGTON AV	BBBH	6/18/2008
07422	543w &544w	MASSACHUSETTS AV	SEND	6/9/2008
05349	7-9	MILLMONT ST	ROXB	6/6/2008
08080	790-800	COLUMBIA RD	NDOR	6/3/2008
08091	121	EAST COTTAGE ST	NDOR	5/29/2008
08105	185	MARLBOROUGH ST	BBBH	5/23/2008
08084	471	EAST THIRD ST	SBOS	5/23/2008
08100	6-8	CLARIDGE TER	SDOR	5/23/2008
07201	25	EXETER ST	BBBH	5/22/2008
06129	2779-2789	WASHINGTON ST	SDOR	5/21/2008
08104	20	MYRTLE ST	JAPL	5/21/2008

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
08127	314	NEWBURY ST	BBBH	5/21/2008
08024	420	E ST	SBOS	5/21/2008
08103	131	BROOKS ST	ALBR	4/30/2008
03165	1100	WASHINGTON ST	SDOR	4/30/2008
07343	830-840	HARRISON AV	SEND	4/30/2008
08025	465-475	CAMBRIDGE ST	ALBR	4/30/2008
08032	532	BEACON ST	CENT	4/30/2008
08078	39	NORWOOD ST	SDOR	4/28/2008
08099	264	HUNTINGTON AV	HYDE	4/26/2008
07270	500	AMORY ST	JAPL	4/26/2008
08059	85	GIBSON ST	SDOR	4/25/2008
07241	15	ELDORA ST	JAPL	4/24/2008
08004	98	GIBSON ST	SDOR	4/18/2008
08019	47	PLEASANT ST	CHAR	4/17/2008
08094	59	SPRAGUE ST	HYDE	4/17/2008
07385	1228	BLUE HILL AV	MATP	4/15/2008
08075	21	UNION PARK	SEND	4/14/2008
08039	1-2	LAMSON ST	EBOS	4/12/2008
07034	100	STUART ST	CENT	4/10/2008
07416	1	GILLETTE PARK	SBOS	4/9/2008
06420	615	ADAMS ST	SDOR	4/9/2008
08077	16-26	HANCOCK ST	NDOR	4/3/2008
06316	285	COLUMBUS AV	CENT	3/27/2008
07309	910	SARATOGA ST	EBOS	3/21/2008
07307	353-365	CENTRE ST	JAPL	3/12/2008
08064	8	VALENTINE ST	ROXB	3/10/2008
05058	620	ALBANY ST	SEND	3/6/2008
07315		FRANKLIN HILL AV	MATP	3/5/2008
07410	106	TYLER ST	CENT	3/3/2008
07376	183w	WINTHROP ST	ROXB	2/27/2008
08044	98	WALTHAM ST	SEND	2/25/2008
08026	7	JUDGE ST	JAPL	2/15/2008
08013	418	LA GRANGE ST	WROX	2/7/2008
07407	1	KNEELAND ST	CENT	2/6/2008
08010	306	LAMARTINE ST	JAPL	2/5/2008
07413	265	COMMONWEALTH AV	BBBH	2/4/2008
07415	567-567B	NORFOLK ST	MATP	2/1/2008
08015	81-83	SAINT STEPHEN ST	FEKE	1/31/2008
08017	142-148	HEMENWAY ST	FEKE	1/31/2008
07352	24-26	CEDAR ST	MATP	1/30/2008
07389	102	ALLSTON ST	ALBR	1/30/2008
08014	1370	DORCHESTER AV	NDOR	1/28/2008
07021	65	BRADEEN ST	ROSL	1/28/2008
07308	4165	WASHINGTON ST	ROSL	1/23/2008
06374	550-556	DORCHESTER AV	SBOS	1/22/2008
07414	50	WEST BROADWAY	SBOS	1/18/2008
06161	69-71	HORACE ST	EBOS	1/15/2008
07248	662-670	HUNTINGTON AV	BBBH	1/10/2008
07325	300	AMERICAN LEGION HWY	MATP	1/10/2008
07419	45	SOUTH CRESCENT CRT	ALBR	1/7/2008
07301	322-324	WEST FOURTH ST	SBOS	1/6/2008
07370	143-149	HEMENWAY ST	FEKE	1/3/2008
07391	106	ROBEY ST	NDOR	1/2/2008
04160	3	BLACKFAN CIR	FEKE	1/2/2008
07170	111-113	PLEASANT ST	NDOR	1/2/2008
07421	157	HAMPDEN ST	ROXB	12/31/2007
04488	122	ELM HILL AV	ROXB	12/27/2007
06217	117-119	STANWOOD ST	ROXB	12/17/2007
07088	2941	WASHINGTON ST	ROXB	12/17/2007
07089	2945	WASHINGTON ST	ROXB	12/17/2007
07084	2949	WASHINGTON ST	ROXB	12/17/2007
07085	2953	WASHINGTON ST	ROXB	12/17/2007
07397	47-51	HUNTINGTON AV	BBBH	12/17/2007
07095	140	SCHOOL ST	ALBR	12/17/2007
07286	156	MOUNT VERNON ST	BBBH	12/13/2007

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
07322	36	DONNYBROOK RD	ALBR	12/13/2007
07386	735	SARATOGA ST	EBOS	12/11/2007
07051	115	UNION ST	ALBR	12/5/2007
07273	244	BOWDOIN ST	SDOR	12/4/2007
07271	25A	HOUGHTON ST	SDOR	12/3/2007
07323	90	BELLE AV	WROX	11/27/2007
07363	8	WHITTIER ST	ROXB	11/27/2007
06331	113	CHARLES ST	CENT	11/27/2007
06248	19-25	CHARLES ST	CENT	11/27/2007
07355	254	WESTERN AV	ALBR	11/18/2007
07332	273	BEACON ST	BBBH	11/18/2007
07327	125	PARK DR	FEKE	11/17/2007
07333	15	BUNKER HILL ST	CHAR	11/16/2007
07223	53-55	ASHFORD ST	ALBR	11/16/2007
06025	145	NORTHERN AV	SBOS	11/15/2007
06307	21	OAK ST	CHAR	11/13/2007
07239	19	OAK ST	CHAR	11/13/2007
07358	231	MAIN ST	CHAR	11/13/2007
07255	376	WEST BROADWAY	SBOS	11/13/2007
07078	35	ELMHURST ST	SDOR	11/9/2007
07351	5	LEXINGTON ST	EBOS	11/7/2007
07336	298	SHAWMUT AV	SEND	11/7/2007
06432	99	HILLSIDE ST	JAPL	11/7/2007
07311	319	BEACON ST	CENT	11/7/2007
07331		NORTH HARVARD ST	ALBR	11/5/2007
05110	35	COFFEY ST	SDOR	11/2/2007
07300	1	ELM ST	JAPL	10/30/2007
07314	46-48	G ST	SBOS	10/24/2007
07194	96	NEPONSET AV	SDOR	10/23/2007
06198	34-38	TOWER ST	ROSL	10/19/2007
07256	33-35	MIDDLE ST	SBOS	10/14/2007
02276	1	SENATOR BOLLING CIR	NDOR	10/12/2007
06335	29	HUMPHREYS ST	SDOR	10/11/2007
05405	89-91	WORCESTER ST	SEND	10/10/2007
07107	1	POND RD	WROX	10/10/2007
07156	20-22	BRIMMER ST	BBBH	10/9/2007
07202	99	SAINT BOTOLPH ST	BBBH	10/5/2007
07266	102	PLEASANTVIEW ST	MATP	10/5/2007
07238	36	ROCKLAND ST	WROX	10/3/2007
07249	226	HARVARD AV	ALBR	10/3/2007
07060	312a	SAVIN HILL AV	NDOR	10/2/2007
06340	39	COMMONWEALTH AV	BBBH	9/27/2007
07216	201	WASHINGTON ST	CENT	9/27/2007
07296	341	GALLIVAN BLVD	SDOR	9/27/2007
07180	84-94	GRAYFIELD AV	WROX	9/25/2007
06386	944	DORCHESTER AV	SDOR	9/25/2007
07124	100	NONANTUM RD	ALBR	9/25/2007
07278	124 & 126	FLORENCE ST	ROSL	9/24/2007
05244	495-527	ALBANY ST	SEND	9/21/2007
07097	2747	WASHINGTON ST	ROXB	9/20/2007
07132	16 & 18	NOTRE DAME ST	ROXB	9/19/2007
05165	11	WYMAN ST	JAPL	9/10/2007
07010	66-68	SEAVERNS AV	JAPL	9/5/2007
07247	18	EXETER ST	BBBH	9/5/2007
04021	1154-1156	DORCHESTER AV	NDOR	8/30/2007
07057	15-17	WELDON ST	ROXB	8/30/2007
07259	15 & 17	ADAMS ST	HYDE	8/27/2007
07254	30	PENFIELD ST	ROSL	8/24/2007
07186	155-157	FRANKLIN ST	ALBR	8/22/2007
07187	151-153	FRANKLIN ST	ALBR	8/21/2007
06035	45	NIGHTINGALE ST	ROXB	8/20/2007
07152	20	VINE ST	CHAR	8/17/2007
07220	54, 56, 60	IFFLEY RD	ROXB	8/15/2007
07188	194	WEST FIRST ST	SBOS	8/15/2007
05184	1906-1918	DORCHESTER AV	SDOR	8/9/2007

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
07165	606	EAST FOURTH ST	SBOS	8/8/2007
06218	445	MARLBOROUGH ST	BBBH	8/6/2007
04044		WILLET ST	WROX	8/1/2007
07206	47	MONTCLAIR AV	WROX	7/31/2007
07161	43-47	OLDFIELDS RD	ROXB	7/27/2007
07184	1472	DORCHESTER AV	SDOR	7/26/2007
07046	36-38	HARRISON AV	CENT	7/26/2007
06370	40-44	HARRISON AV	CENT	7/25/2007
07164	33	THEODORE ST	MATP	7/25/2007
07207	168-170	BOWEN ST	SBOS	7/20/2007
07145	150	RIVERWAY	FEKE	7/20/2007
06450	8-10	PEARL ST	NDOR	7/20/2007
07210	9	DARTMOUTH ST	BBBH	7/20/2007
06353	30	MILLSTONE RD	HYDE	7/18/2007
07143	28	GENEVA ST	EBOS	7/18/2007
07045	34	HARRISON AV	CENT	7/18/2007
07098	266-270	CENTRE ST	JAPL	7/18/2007
07193	65	FORSYTH ST	FEKE	7/17/2007
06263	6-6b	FOREST ST	ROXB	7/17/2007
07176	248	C ST	SBOS	7/17/2007
07139	25	LIME ST	BBBH	7/17/2007
07191	37-41	BEAVER PL	BBBH	7/17/2007
07142	96	BEACON ST	BBBH	7/17/2007
06366	37	COMMONWEALTH AV	BBBH	7/11/2007
06406	293	MARLBOROUGH ST	BBBH	7/9/2007
07149	500	SOLDIERS FIELD RD	ALBR	7/6/2007
07212	119	WEST CONCORD ST	SEND	7/5/2007
02245	400	FENWAY PZ	FEKE	7/5/2007
07059	400	FENWAY	FEKE	7/5/2007
07198	64 & 68	NIGHTINGALE ST	ROXB	6/29/2007
07172	49	STRATTON ST	MATP	6/28/2007
07173	17	STRATTON ST	MATP	6/28/2007
07171	114	FLOYD ST	MATP	6/28/2007
07174	124	CALLENDER ST	MATP	6/28/2007
07175	105	STRATTON ST	MATP	6/27/2007
06291	347	COMMONWEALTH AV	ALBR	6/25/2007
07106	47	THORNDIKE ST	ROXB	6/22/2007
07158	304	COMMONWEALTH AV	CENT	6/21/2007
07115	34	RAYMOND ST	ALBR	6/14/2007
07101	8	FARNHAM ST	ROXB	6/13/2007
07150	34	COFFEY ST	SDOR	6/13/2007
07119	70	GARDNER ST	WROX	6/13/2007
07293	267-281	MEDFORD ST	CENT	6/11/2007
07112	80	WALNUT PARK	ROXB	6/8/2007
07138	145	ORMOND ST	MATP	6/4/2007
07104	776, 780	DUDLEY ST	ROXB	6/1/2007
07114	31	LAWN ST	JAPL	6/1/2007
07127	60	SOUTH ST	CENT	6/1/2007
05072	152	OLD COLONY AV	SBOS	5/24/2007
07140	20	RUTLAND SQ	SEND	5/24/2007
06457	1300	CENTRE ST	ROSL	5/17/2007
07113	66	GOVE ST	EBOS	5/17/2007
06456	18	ROBERT ST	ROSL	5/14/2007
07067	100	BEACON ST	CENT	5/11/2007
07071	20-22	JULIAN ST	ROXB	5/11/2007
07072	350	WEST SECOND ST	SBOS	5/9/2007
06336	305-319	TALBOT AV	SDOR	5/4/2007
07121	20	BRADLEE ST	SDOR	5/4/2007
06109	12	HUMPHREYS ST	NDOR	5/1/2007
06441	1181	DORCHESTER AV	NDOR	4/26/2007
07079	87	REVERE ST	BBBH	4/25/2007
06209	40	RIVER ST	SDOR	4/24/2007
07044	1007-989	BLUE HILL AV	MATP	4/20/2007
06126	2	ATLANTIC ST	SBOS	4/18/2007
07058	441-449	HYDE PARK AV	ROSL	4/10/2007

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06423	1155-1175	TREMONT ST	FEKE	4/10/2007
06015	31	HOLYOKE ST	BBBH	4/10/2007
06284	181	MARLBOROUGH ST	BBBH	4/6/2007
07090	2937	WASHINGTON ST	ROXB	4/4/2007
06279	15-21	GREENMOUNT ST	NDOR	4/2/2007
05239	494-500	MEDFORD ST	CHAR	3/30/2007
07054	48	HEMMAN ST	ROSL	3/30/2007
05158	12	SPARHAWK ST	ALBR	3/27/2007
07037	132-134	BEACON ST	BBBH	3/27/2007
07061	1803, 1807	DORCHESTER AV	NDOR	3/27/2007
07056	460-462	MEDFORD ST	CENT	3/22/2007
06444	316-322	SUMMER ST	SBOS	3/22/2007
05379	39-41	EUTAW ST	EBOS	3/21/2007
07039	236	CHESTNUT AV	JAPL	3/21/2007
06455	156	LINCOLN ST	ALBR	3/20/2007
07047	726	SARATOGA ST	EBOS	3/19/2007
07026	67	RICHMOND ST	SDOR	3/16/2007
06233	310	BEACON ST	BBBH	3/15/2007
07019	126	JERSEY ST	FEKE	3/14/2007
07041	58-60	EAST SPRINGFIELD ST	SEND	3/13/2007
07053	40	WORCESTER ST	SEND	3/2/2007
06036	83	WORCESTER ST	SEND	3/1/2007
07055	125-129	HEMENWAY ST	FEKE	3/1/2007
06343	396	NORTHAMPTON ST	FEKE	3/1/2007
07050	1431-1435	TREMONT ST	ROXB	2/23/2007
07031	99	SUMMER ST	HYDE	2/23/2007
06415	435	MOUNT VERNON ST	NDOR	2/22/2007
06363	435	MOUNT VERNON ST	NDOR	2/22/2007
05333	95-111	BERKELEY ST	CENT	2/16/2007
06273	774	ALBANY ST	SEND	2/15/2007
07042	2504, 2506	CENTRE ST	WROX	2/8/2007
07024	230	SHAWMUT AV	CENT	2/5/2007
06436	35	WEST NEWTON ST	BBBH	2/5/2007
06181	126	SAINT BOTOLPH ST	BBBH	2/2/2007
07022	8	MARLBOROUGH ST	BBBH	2/1/2007
06108	54	WHEATLAND AV	SDOR	2/1/2007
06429	1179	RIVER ST	HYDE	1/30/2007
07002	14-14A	IROQUOIS ST	JAPL	1/30/2007
06458	846	DORCHESTER AV	NDOR	1/30/2007
07025	111	SAINT BOTOLPH ST	BBBH	1/26/2007
06355	128	KENRICK ST	ALBR	1/23/2007
04366	33	COTTAGE ST	EBOS	1/23/2007
06438	602	TREMONT ST	CENT	1/17/2007
05125	10	FORD ST	EBOS	1/17/2007
07013	315	BAKER ST	WROX	1/12/2007
06385	815	BOYLSTON ST	BBBH	1/11/2007
06393	1350	BLUE HILL AV	MATP	1/11/2007
06426	13-17	PARK ST	SDOR	1/10/2007
06443	79	CHANDLER ST	SEND	1/9/2007
06428	222	WOODROW AV	MATP	1/8/2007
06212		FRANKLIN HILL AV	MATP	1/4/2007
05115	2	BEECHWOOD ST	JAPL	1/2/2007
04374	150	BARNES AV	EBOS	12/28/2006
06448	38	WOODBINE ST	ROXB	12/28/2006
06391	24	WINTHROP ST	ROXB	12/23/2006
06439	6	LARCH PL	ROSL	12/22/2006
06200	564-630	DUDLEY ST	NDOR	12/22/2006
06449	96	SAINT BOTOLPH ST	BBBH	12/22/2006
06398	1714-1734	COMMONWEALTH AV	ALBR	12/17/2006
06235	17	LAFIELD ST	SDOR	12/12/2006
06435	261	WALNUT AV	ROXB	12/12/2006
06182	60	WASHINGTON ST	ROXB	12/12/2006
06418	52	FAIRVIEW ST	ROSL	12/7/2006
06311	939	BOYLSTON ST	BBBH	12/4/2006
05428	409	WALNUT AV	ROXB	11/30/2006

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06390	113	WARREN AV	SEND	11/29/2006
06134	87	TYLER ST	CENT	11/29/2006
06413	157-161	NEWBURY ST	BBBH	11/28/2006
06256	906-910	HYDE PARK AV	HYDE	11/27/2006
06412	6	ARLINGTON ST	BBBH	11/21/2006
06405	290	MARLBOROUGH ST	BBBH	11/20/2006
06407	90	PEMBROKE ST	SEND	11/20/2006
06163	650	WILLIAM T MORRISSEY BLVD	NDOR	11/20/2006
06143	533	CAMBRIDGE ST	ALBR	11/17/2006
06289	24	WEST HOWELL ST	NDOR	11/17/2006
04282	43		CHAR	11/14/2006
06402	1280	BLUE HILL AV	MATP	11/14/2006
06068	390-406	STUART ST	BBBH	11/14/2006
04496	144	FORSYTH ST	FEKE	11/14/2006
06257	2-6	HOPKINS PL	MATP	11/14/2006
02081	375-401	MOUNT VERNON ST	NDOR	11/13/2006
06031	72-74	GENEVA AV	ROXB	11/13/2006
06342	681	TREMONT ST	SEND	11/13/2006
06283	233	CLARENDON ST	BBBH	11/9/2006
06397	3-3A	MENLO ST	ALBR	11/9/2006
06395	193	STIMSON ST	WROX	11/7/2006
06358	5	UNION PARK	SEND	11/7/2006
06377	26A-26B	ARBUTUS ST	MATP	11/7/2006
04300	1950	DORCHESTER AV	SDOR	11/6/2006
06357	108-110	MOUNT VERNON ST	BBBH	11/3/2006
05089	81	FAIRMOUNT AV	HYDE	11/3/2006
06224	346-354	CONGRESS ST	CENT	10/30/2006
06274	14	SUTHERLAND RD	ALBR	10/27/2006
06315	167	NORFOLK AV	ROXB	10/27/2006
04425	71-79	BRUNSWICK ST	ROXB	10/27/2006
06262	70-72	TREMONT ST	ALBR	10/26/2006
06318	2	DAVID RD	JAPL	10/26/2006
06288	1100	MASSACHUSETTS AV	NDOR	10/26/2006
06332	1437	HYDE PARK AV	HYDE	10/23/2006
06205	673	MORTON ST	MATP	10/23/2006
06369	93-95	THORNTON ST	ROXB	10/23/2006
06133	18	MARBURY TER	ROXB	10/23/2006
06166	125	SOUTH HUNTINGTON AV	JAPL	10/23/2006
06145	245	RIVER ST	MATP	10/23/2006
06104	422-426	RIVER ST	MATP	10/20/2006
06238	68-70	BAY STATE RD	FEKE	10/19/2006
06324	14,14A,16	WESTMINSTER ST	ROXB	10/18/2006
06265	39	JULIETTE ST	SDOR	10/16/2006
06152	32	WALES ST	ROXB	10/6/2006
06317	465	HUNTINGTON AV	FEKE	10/6/2006
06266	39-41	MAGAZINE ST	ROXB	10/3/2006
05406	189	WEST SPRINGFIELD ST	SEND	10/3/2006
06261	32	ARDEN ST	ALBR	10/2/2006
06298	29-31	WAVERLY ST	ROXB	9/25/2006
05385	6	OTIS PL	BBBH	9/25/2006
06203	12-14	EVERETT ST	ALBR	9/25/2006
06271	5-11	WOODWORTH ST	SDOR	9/21/2006
05410	572-574	MASSACHUSETTS AV	BBBH	9/20/2006
05408	508	MASSACHUSETTS AV	BBBH	9/20/2006
06258	28	ROSEBERRY RD	HYDE	9/20/2006
05411	671-675	MASSACHUSETTS AV	BBBH	9/20/2006
05409	654	MASSACHUSETTS AV	BBBH	9/20/2006
05401	498	COLUMBUS AV	SEND	9/20/2006
05403	130	WEST CONCORD ST	SEND	9/20/2006
03094	18	FREEMAN ST	SDOR	9/20/2006
06334	5	MILL ST	SDOR	9/20/2006
05336	115	COMMONWEALTH AV	BBBH	9/15/2006
06247	184	BEACON ST	BBBH	9/15/2006
06241	44	WALKER ST	CHAR	9/8/2006
06297	224	EVERETT ST	EBOS	9/6/2006

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
05234	229	COLUMBIA RD	ROXB	8/30/2006
05404	106-108	WEST CONCORD ST	SEND	8/29/2006
05402	55	RUTLAND ST	SEND	8/28/2006
05407	457	MASSACHUSETTS AV	BBBH	8/28/2006
06300	18-26	SAINT STEPHEN ST	FEKE	8/21/2006
05389	9-13	CERINA RD	JAPL	8/17/2006
06009	48	COMMONWEALTH AV	ALBR	8/15/2006
05264	50	ROSSMORE RD	JAPL	8/14/2006
06221	202	MARION ST	EBOS	8/14/2006
06168	30	CALDWELL ST	CHAR	8/10/2006
06149	7	FOX ST	SDOR	8/9/2006
06195	474	EAST THIRD ST	SBOS	8/7/2006
04469	474	DORCHESTER AV	SBOS	8/3/2006
06210	380	TALBOT AV	MATP	8/2/2006
06117	34	SPARHAWK ST	ALBR	7/21/2006
06115	3025	WASHINGTON ST	ROXB	7/20/2006
06150	10-46	ROWE ST	ROSL	7/20/2006
06191	34	MOSELEY ST	NDOR	7/19/2006
06125	188	HAMPDEN ST	ROXB	7/19/2006
05136	30	FLINT ST	MATP	7/19/2006
02496	73	HANO ST	ALBR	7/19/2006
04119	261	HUNTINGTON AV	HYDE	7/14/2006
06153	58	CIRCUIT ST	ROXB	7/14/2006
04477	461	PARK DR	FEKE	7/14/2006
06155	36	ORANGE ST	ROSL	6/30/2006
06039	1252	MASSACHUSETTS AV	NDOR	6/28/2006
06066	63	QUINCY ST	NDOR	6/28/2006
06156	11	TYLER ST	HYDE	6/28/2006
06138	45	EAST BROADWAY	SBOS	6/27/2006
06132	48	EAST SPRINGFIELD ST	SEND	6/26/2006
04400	97 - 107	BOARDMAN ST	EBOS	6/26/2006
06128	8-10	WESTLAND AV	FEKE	6/26/2006
06049	2-8A	WARNER ST	ROXB	6/23/2006
06061	28-30	RICHFIELD ST	SDOR	6/19/2006
06078	180	MASSACHUSETTS AV	BBBH	6/19/2006
06130	20	LINCOLN ST	ALBR	6/14/2006
05433	30	NORFOLK AV	ROXB	6/14/2006
06094	65	BURRELL ST	ROXB	6/14/2006
06137	43	RUGDALE RD	SDOR	6/13/2006
06121	292-296	NEWBURY ST	BBBH	6/12/2006
06085	300	CONGRESS ST	CENT	6/12/2006
06032	4	AVENUE LOUIS PASTEUR	FEKE	6/9/2006
05271	9	CORTES ST	CENT	6/6/2006
05032	111-131	GREEN ST	JAPL	6/1/2006
05290	1361	WASHINGTON ST	SEND	5/31/2006
06160	22	HANCOCK ST	BBBH	5/24/2006
05394	790-830	HARRISON AV	SEND	5/23/2006
05353	303	COLUMBUS AV	ROXB	5/22/2006
06010	32	COBDEN ST	ROXB	5/19/2006
02292	15	NORWELL ST	MATP	5/19/2006
06111	103	RUSSELL ST	CHAR	5/18/2006
05352	8	EAST SPRINGFIELD ST	SEND	5/18/2006
05297	746-750	SHAWMUT AV	ROXB	5/15/2006
06086	76,80,84	SEAVER ST	ROXB	5/12/2006
06113	1A-1B	STOCKTON ST	SDOR	5/12/2006
05442	29	ARDEN ST	ALBR	5/11/2006
06027	300	NEWBURY ST	BBBH	5/11/2006
05139	4-6	EMMET ST	SBOS	5/11/2006
03442	435	SUMMER ST	SBOS	5/11/2006
05344	15-17	WARD ST	SBOS	5/11/2006
06080	70	ORLANDO ST	MATP	5/10/2006
06084	662	BENNINGTON ST	EBOS	5/8/2006
05004	429	BORDER ST	EBOS	5/6/2006
02507	41	JONES AV	MATP	5/4/2006
05088	950	METROPOLITAN AV	HYDE	5/4/2006

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06091	16	ALBION ST	ROXB	5/2/2006
06054	47	OCEAN ST	SDOR	5/2/2006
05395	1330	BOYLSTON ST	BBBH	5/2/2006
06092	412	MERIDIAN ST	EBOS	5/2/2006
05365	78	DENT ST	WROX	4/24/2006
05416	366	BREMEN ST	EBOS	4/24/2006
06065	9	INGLESIDE ST	ROXB	4/20/2006
06024	24	MITCHELL ST	SBOS	4/18/2006
04365	1096	BLUE HILL AV	MATP	4/18/2006
06042	256-260	BREMEN ST	EBOS	4/14/2006
05425	91-95	WEST SEVENTH ST	SBOS	4/13/2006
05370	240	PRESCOTT ST	EBOS	4/13/2006
06033	20	SAINT ALBANS RD	JAPL	4/7/2006
05203	40	HANCOCK ST	NDOR	4/7/2006
06013	557-559	EAST SECOND ST	SBOS	4/7/2006
03382	116	WEST THIRD ST	SBOS	4/6/2006
06114	105	BOLTON ST	SBOS	4/6/2006
05384	22	MONUMENT ST	CHAR	4/4/2006
05299	109	D ST	SBOS	3/31/2006
06019	63	CHESTNUT AV	JAPL	3/27/2006
05426	301	BOLTON ST	SBOS	3/24/2006
06098	276	BOWEN ST	SBOS	3/24/2006
06075	12	BEACON PARK	ALBR	3/22/2006
06003	62	HEREFORD ST	BBBH	3/20/2006
06012	45	BEAVER PL	BBBH	3/14/2006
03321	2-6	ARAMON ST	EBOS	3/8/2006
06043	160	E ST	SBOS	3/6/2006
06007	40-44	WEST TREMLETT ST	SDOR	3/6/2006
04372	257	SHAWMUT AV	SEND	3/6/2006
06011	249	NEWBURY ST	BBBH	3/1/2006
05173	1571	RIVER ST	HYDE	2/28/2006
06037	18-24	ASTORIA ST	SDOR	2/28/2006
06004	178-180	MAGNOLIA ST	ROXB	2/17/2006
06020	172-176	MAGNOLIA ST	ROXB	2/16/2006
06023	22	EVELYN ST	MATP	2/15/2006
05325	300	MEDFORD ST	CHAR	2/14/2006
05197	7-17	MELNEA CASS BLVD	ROXB	2/8/2006
06006	73	SPRING PARK AV	JAPL	2/6/2006
06008	24	COBDEN ST	ROXB	2/1/2006
06002	92	CHESTNUT ST	BBBH	1/30/2006
05025	80	BORDER ST	EBOS	1/27/2006
05329	64-68	NORFOLK AV	ROXB	1/26/2006
02203	49-51	NORFOLK ST	SDOR	1/26/2006
05388	212	BEACON ST	CENT	1/23/2006
05439	132	WILMINGTON AV	MATP	1/20/2006
05043	800	HARRISON AV	CENT	1/20/2006
04368	12-14	EASTBURN ST	ALBR	1/18/2006
05282	811-813	BOYLSTON ST	BBBH	1/13/2006
06378	113	BEACON ST	CENT	1/13/2006
05420	37	SHEPARD ST	ALBR	1/9/2006
05444	572	FREEPORT ST	SDOR	1/5/2006
05350	255	NORTHAMPTON ST	FEKE	1/4/2006
05375	1483-1485	HYDE PARK AV	HYDE	1/4/2006
05229	38	WAVERLY ST	ROXB	1/4/2006
05367	28,30 &32	ADAMSON ST	ALBR	1/4/2006
05208	83-95	BROOKLEY RD	JAPL	1/4/2006
05441	142	CHESTNUT ST	BBBH	1/3/2006
05364	119-121	HOMESTEAD ST	ROXB	12/23/2005
05436	503	EAST BROADWAY	SBOS	12/23/2005
05092	1680	VFW PKWY	WROX	12/8/2005
05278	695	MASSACHUSETTS AV	SEND	12/8/2005
02293	35	PARKER ST	CHAR	12/6/2005
05348	16	UNION AV	JAPL	12/5/2005
05326	401	COMMONWEALTH AV	BBBH	11/22/2005
05371	75	BARTLETT ST	CHAR	11/21/2005

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
05372	356-360	WEST SECOND ST	SBOS	11/17/2005
05252	413	COMMONWEALTH AV	BBBH	11/15/2005
03278	3175	WASHINGTON ST	JAPL	11/9/2005
05128	572	WARREN ST	ROXB	11/9/2005
05177	392	WEST FIRST ST	SBOS	11/9/2005
05207	5	VALENTINE ST	ROXB	11/8/2005
05141	1143-1149	WASHINGTON ST	CENT	11/2/2005
05193	710	GALLIVAN BLVD	SDOR	11/2/2005
04254	99	CHESTNUT HILL AV	ALBR	11/1/2005
05272	958	BENNINGTON ST	EBOS	10/28/2005
05295	321	DARTMOUTH ST	BBBH	10/28/2005
05108	37	CLARENDON ST	SEND	10/28/2005
05288	380	BLUE HILL AV	ROXB	10/28/2005
03178	1306	COMMONWEALTH AV	ALBR	10/25/2005
05351	1848-1850	CENTRE ST	WROX	10/21/2005
05292	18-20	KNOWLTON ST	SBOS	10/20/2005
04311	60	SUMNER ST	EBOS	10/20/2005
05254	88	WEST BROADWAY	SBOS	10/19/2005
05247	280	CHARLES ST	CENT	10/13/2005
05231	2	BOYLSTON ST	JAPL	10/12/2005
05286	2-12	CHESTNUT ST	CHAR	10/12/2005
05269	950	HARVARD ST	MATP	10/11/2005
05256	550	DUDLEY ST	ROXB	10/7/2005
05255	0-10	EMERSON PL	CENT	10/5/2005
03271	0	JEWISH WAR VETERANS DR	ROSL	10/4/2005
05245	4	BLAKEMORE ST	ROSL	10/3/2005
04013	287	EVERETT ST	ALBR	9/29/2005
05152	84	ALLSTON ST	ALBR	9/29/2005
05258	1104	WASHINGTON ST	CHAR	9/26/2005
03189	328	MERIDIAN ST	EBOS	9/23/2005
05240	2	WELD AV	ROXB	9/21/2005
05268	429	GALLIVAN BLVD	SDOR	9/21/2005
05200	132	HORACE ST	EBOS	9/15/2005
05051	782	DORCHESTER AV	NDOR	9/15/2005
05046	27	ELLINGTON ST	ROXB	8/26/2005
05181	150	ALFORD ST	CHAR	8/25/2005
05223	3-5	LINCOLN PL	CHAR	8/24/2005
04467	480	WILLIAM F MCCLELLAN HWY	EBOS	8/19/2005
05205	49-63	OLDFIELDS RD	ROXB	8/18/2005
03012	69	PARKTON RD	JAPL	8/18/2005
04396	4041	WASHINGTON ST	ROSL	8/15/2005
05209	6	FAWNDALE RD	ROSL	8/12/2005
05227	109	WESTERN AV	ALBR	8/12/2005
05169	1118	MASSACHUSETTS AV	NDOR	8/5/2005
05170	1110	MASSACHUSETTS AV	NDOR	8/5/2005
04075	40	PARK ST	SDOR	8/4/2005
05112	1560	VFW PKWY	WROX	8/3/2005
05196	66	COMMONWEALTH AV	ALBR	8/3/2005
05164	74	JOY ST	BBBH	7/28/2005
04406	1100	MASSACHUSETTS AV	NDOR	7/28/2005
05226	5A	MOUNT VERNON ST	NDOR	7/22/2005
03392	661-665	BENNINGTON ST	EBOS	7/22/2005
03107	260	COMMERCIAL ST	CENT	7/20/2005
05126	1834	CENTRE ST	WROX	7/20/2005
04340	731	HARRISON AV	SEND	7/15/2005
04398	145	NORTH BEACON ST	ALBR	7/13/2005
04479	31	GERMANIA ST	ROXB	7/8/2005
04136	1336	WASHINGTON ST	SEND	7/7/2005
05162	11	OAKWOOD ST	HYDE	7/1/2005
04301	2410	BEACON ST	ALBR	6/27/2005
03462	1	COLBURN ST	ROXB	6/27/2005
05132	33	ALLERTON ST	ROXB	6/23/2005
03459	54	BUSINESS ST	HYDE	6/15/2005
05107	40	WESTFORD ST	ALBR	6/15/2005
04345	280	CENTRE ST	JAPL	6/14/2005

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
05114	115	FISHER AV	JAPL	6/14/2005
02188	140	CAROLINA AV	JAPL	6/8/2005
05131	555	TALBOT AV	SDOR	6/8/2005
03362	77	THETFORD AV	MATP	6/1/2005
05130	7	OLIVE ST	ALBR	5/26/2005
05052	96	DIX ST	SDOR	5/26/2005
04381	1171	HYDE PARK AV	HYDE	5/23/2005
05111	37	COFFEY ST	SDOR	5/16/2005
05020	1	EAST LENOX ST	SEND	5/13/2005
04408	424	FANEUIL ST	ALBR	5/13/2005
05018	606	CONGRESS ST	SBOS	5/10/2005
04024	1317 -1325	BLUE HILL AV	MATP	4/29/2005
05007	420	D ST	SBOS	4/29/2005
05037	234	MOSS HILL RD	JAPL	4/27/2005
05069	79	NEWBURY ST	BBBH	4/26/2005
05039	142	BIGELOW ST	ALBR	4/25/2005
04455	51	SUMNER ST	NDOR	4/21/2005
04059	242	BUNKER HILL ST	CHAR	4/19/2005
05027	68	SUMNER ST	NDOR	4/15/2005
05045	50	DIMOCK ST	ROXB	4/15/2005
02181	90	SOUTHAMPTON ST	NDOR	4/14/2005
05042	33	UPHAM AV	NDOR	4/11/2005
05076	13-23	DOWNER CT	NDOR	4/8/2005
04409	65	SPRAGUE ST	HYDE	4/7/2005
04337	1599	COLUMBUS AV	ROXB	4/4/2005
04344	40	BUTLER ST	SDOR	3/30/2005
05002	19	AVALON RD	WROX	3/28/2005
04459	1	GUEST ST	ALBR	3/23/2005
04447	55	MALCOLM X BLVD	ROXB	3/14/2005
04486	5	MARION ST	EBOS	2/28/2005
04391	135	DORCHESTER AV	SDOR	2/14/2005
05022	25	MOUNT VERNON ST	NDOR	2/10/2005
04464	472	MASSACHUSETTS AV	BBBH	2/10/2005
05008	2	BROOKS ST	EBOS	2/8/2005
04338	700	HARRISON AV	SEND	2/4/2005
04407	342	WEST BROADWAY	SBOS	2/3/2005
04451	15	DUNWELL ST	WROX	1/26/2005
04367	323	CENTRE ST	JAPL	1/14/2005
04430	192	HUMBOLDT AV	ROXB	1/14/2005
04229	100	TOPEKA ST	NDOR	1/12/2005
04443	32	MEDWAY ST	SDOR	1/7/2005
04444	606	FREEPORT ST	SDOR	12/21/2004
03330	23	BRADSTON ST	NDOR	12/16/2004
04450	1135	HARRISON AV	ROXB	12/10/2004
04321	40A	LEON ST	FEKE	12/1/2004
04382	20	BATCHELDER ST	NDOR	12/1/2004
03052	250	LINCOLN ST	ALBR	12/1/2004
03205	637	CAMBRIDGE ST	ALBR	11/24/2004
04033	430	CANTERBURY ST	ROSL	11/23/2004
04259	391	CONGRESS ST	SBOS	11/22/2004
04403	1	ELLIS ST	ROXB	11/20/2004
04006	82	GLEN RD	JAPL	11/12/2004
04294	160	VFW PKWY	WROX	11/8/2004
04204	195	WEBSTER ST	EBOS	11/5/2004
04220	233	D ST	SBOS	11/3/2004
04165	29	PERKINS ST	JAPL	11/3/2004
03343	330	SUMMIT AV	ALBR	10/29/2004
02196	545	FREEPORT ST	SDOR	10/29/2004
04330	413	MAIN ST	CHAR	10/22/2004
04346	109	ADAMS ST	SDOR	10/22/2004
04268	185	COLUMBIA RD	ROXB	10/22/2004
03261	401	MASSACHUSETTS AV	FEKE	10/7/2004
03263	419	MASSACHUSETTS AV	FEKE	10/7/2004
04085	12	EUCLID ST	SDOR	9/30/2004
03318	63R	BOSTON ST	NDOR	9/27/2004

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
04297	520	MASSACHUSETTS AV	SEND	9/23/2004
04264	26	PRESCOTT ST	HYDE	9/15/2004
04296	209	D ST	SBOS	9/14/2004
03305	2236	CENTRE ST	WROX	9/13/2004
01323	881	COMMONWEALTH AV	ALBR	9/10/2004
04286	15	ROSECLAIR ST	NDOR	9/2/2004
04293	130	WEST THIRD ST	SBOS	8/31/2004
04095	300	FENWAY	FEKE	8/27/2004
04263	38	G ST	SBOS	8/26/2004
02474	418	CENTRE ST	JAPL	8/26/2004
04171	215	CHARLES ST	CENT	8/19/2004
03296	780	GALLIVAN BLVD	SDOR	8/19/2004
01441	11	ENNIS RD	ROXB	8/11/2004
04197	26W	HUCKINS ST	ROXB	8/6/2004
04043	80	BICKFORD ST	JAPL	8/6/2004
04198	59W	CRAWFORD ST	ROXB	8/6/2004
01203	157	NEWBURY ST	BBBH	8/6/2004
04242	251	HEATH ST	JAPL	8/6/2004
04037	50W	STANHOPE ST	BBBH	7/28/2004
03463	670	ALBANY ST	SEND	7/28/2004
04236	53	CLAYBOURNE ST	SDOR	7/22/2004
04228	14	WARREN SQ	JAPL	7/22/2004
04133	100	NORTHERN AV	SBOS	7/22/2004
04108	245	RIVER ST	MATP	7/22/2004
02514	23	WELLINGTON ST	FEKE	7/22/2004
04169	1157	ADAMS ST	SDOR	7/15/2004
04185	36	CHESTNUT AV	JAPL	7/14/2004
04213	725	SOUTH ST	ROSL	7/9/2004
04192	25	TAFT HILL TER	ROSL	7/8/2004
04156	214	HARVARD AV	ALBR	7/6/2004
04019	931	HYDE PARK AV	HYDE	7/1/2004
04071	531	ADAMS ST	SDOR	7/1/2004
04187	19	WEST COTTAGE ST	ROXB	6/25/2004
04196	2315	WASHINGTON ST	ROXB	6/25/2004
04031	1927	BEACON ST	ALBR	6/23/2004
04184	30	WARREN ST	ALBR	6/21/2004
04123	625	COMMONWEALTH AV	FEKE	6/21/2004
03351	555	HUNTINGTON AV	FEKE	6/21/2004
04117	67	CHURCH ST	NDOR	6/3/2004
04137	420	POND ST	JAPL	6/3/2004
02346	3	NEPONSET AV	ROSL	6/2/2004
03460	1-19	MAPLE LEAF DR	HYDE	6/1/2004
04159	87	DIX ST	SDOR	5/21/2004
04042	2855	WASHINGTON ST	ROXB	5/21/2004
04061	3141	WASHINGTON ST	ROXB	5/21/2004
04127	36	MERCER ST	SBOS	5/14/2004
03465	21	QUEEN ST	SDOR	5/14/2004
04058	2	GLENWOOD AV	HYDE	5/4/2004
02336	1	WEST BROADWAY	SBOS	4/28/2004
03247	45	EAST NEWTON ST	SEND	4/28/2004
04053	735	HYDE PARK AV	HYDE	4/23/2004
04054	556	ATLANTIC AV	CENT	4/23/2004
04068	2	WARREN ST	ROXB	4/23/2004
03098	103	PILGRIM RD	FEKE	4/16/2004
04081	30	RANDOLPH ST	SEND	4/6/2004
04062	3	LOUISBURG SQ	BBBH	4/5/2004
04026	19	SPEEDWELL ST	SDOR	4/5/2004
03444		BINNEY ST	FEKE	4/5/2004
03304	1160	BLUE HILL AV	MATP	4/1/2004
04018	13	WEST DEDHAM ST	SEND	3/25/2004
04038	348	BEACON ST	BBBH	3/16/2004
02128	400	FENWAY	FEKE	3/12/2004
04048	50	CLAPP ST	NDOR	3/5/2004
04008	811	MASSACHUSETTS AV	SEND	2/27/2004
02341	600	D ST	SBOS	2/27/2004

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
04015	156	PORTER ST	EBOS	2/26/2004
03292	182	DUDLEY ST	ROXB	2/25/2004
03283	840	MASSACHUSETTS AV	NDOR	2/19/2004
04005	13	GERARD ST	ROXB	2/19/2004
03439	2055	COLUMBUS AV	ROXB	2/12/2004
03002	9	HARROW ST	NDOR	2/11/2004
04023	9	WILKINSON PARK	SDOR	1/29/2004
04007	1920	CENTRE ST	WROX	1/29/2004
03286	11	MAYHEW ST	NDOR	1/27/2004
03456	14	FIDELIS WY	ALBR	1/26/2004
03454	40	PILGRIM RD	FEKE	1/26/2004
03381	164	BENNINGTON ST	EBOS	1/22/2004
01472	31	FULDA ST	ROXB	1/14/2004
03252	286	WALNUT AV	ROXB	1/9/2004
03370	623	MASSACHUSETTS AV	SEND	12/31/2003
03361	139	PEMBROKE ST	SEND	12/31/2003
03388	13	MARLBOROUGH ST	BBBH	12/24/2003
03422	77	WESTMINSTER ST	HYDE	12/24/2003
03425	143	THORNTON ST	ROXB	12/24/2003
03386	350	BLUE HILL AV	ROXB	12/23/2003
03363	506	COLUMBUS AV	SEND	12/12/2003
03267	65	MOHAWK ST	SBOS	12/12/2003
03293	89	AMORY ST	ROXB	12/12/2003
03221	150	WILLIAM T MORRISSEY BLVD	NDOR	12/9/2003
03336	582	FREEPORT ST	SDOR	12/8/2003
03207	40	NEWMARKET SQ	NDOR	12/8/2003
03380	32	STEDMAN ST	JAPL	12/4/2003
03357	638	WARREN ST	ROXB	12/4/2003
03400	733	HUNTINGTON AV	JAPL	12/4/2003
03410	30	GREENWICH PARK	BBBH	12/4/2003
03186	10	WASHINGTON ST	ROXB	12/3/2003
03411	29	RUTLAND ST	SEND	12/1/2003
03412	96	WEST SPRINGFIELD ST	SEND	12/1/2003
02468	85	KINGSDALE ST	ROXB	12/1/2003
02469	219	HARVARD ST	ROXB	12/1/2003
02471	83	WALES ST	ROXB	12/1/2003
03415	16	TRENTON ST	EBOS	11/25/2003
03273	100	NORWAY ST	FEKE	11/25/2003
03341	126	BEACON ST	BBBH	11/25/2003
02482	198	H ST	SBOS	11/18/2003
03149	56	WENHAM ST	ROSL	11/12/2003
02166	170	EVERETT ST	EBOS	11/12/2003
03223	133	DORCHESTER ST	SBOS	11/12/2003
02265	163	HEATH ST	JAPL	11/12/2003
03346	84	WORCESTER ST	SEND	11/7/2003
03345	57	WORCESTER ST	SEND	11/7/2003
03375	213	WEST NEWTON ST	BBBH	11/7/2003
03368	115	WEST NEWTON ST	SEND	11/7/2003
03353	560	MASSACHUSETTS AV	SEND	11/7/2003
03130	692	MASSACHUSETTS AV	SEND	11/7/2003
03376	127	WEST CONCORD ST	SEND	11/7/2003
03374	24	EAST SPRINGFIELD ST	SEND	11/7/2003
01239	46	KINGSDALE ST	ROXB	11/5/2003
03282	1	CRESTVIEW RD	ROSL	10/31/2003
03248	146	ALABAMA ST	MATP	10/24/2003
03287	96	WILLIAM T MORRISSEY BLVD	NDOR	10/23/2003
03238	3089	WASHINGTON ST	ROXB	10/23/2003
03234	3033	WASHINGTON ST	ROXB	10/23/2003
02140	285	CLARENDON ST	BBBH	10/22/2003
02355	143	BORDER ST	EBOS	10/22/2003
02258	1	WORRELL ST	SDOR	10/22/2003
03038	1	WALDEN ST	JAPL	10/22/2003
02481	15	MONSIGNOR REYNOLDS WY	SEND	10/22/2003
03230	49	PARKER HILL AV	JAPL	10/16/2003
00502	2501	WASHINGTON ST	ROXB	10/15/2003

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PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
03129	696	MASSACHUSETTS AV	SEND	10/15/2003
02517	545	MASSACHUSETTS AV	SEND	10/15/2003
01266	84	DACIA ST	ROXB	10/14/2003
02455	1215	CENTRE ST	ROSL	10/10/2003
02381	10	PUTNAM ST	ROXB	10/8/2003
03127	404	WEST FIRST ST	SBOS	10/7/2003
02515	569	MASSACHUSETTS AV	SEND	9/30/2003
02516	612	MASSACHUSETTS AV	SEND	9/29/2003
02304	49	COMMONWEALTH AV	BBBH	9/29/2003
02518	553	MASSACHUSETTS AV	SEND	9/29/2003
03147	70		EBOS	9/23/2003
01240	53	NIGHTINGALE ST	ROXB	9/18/2003
01243	17	BROWNING AV	ROXB	9/18/2003
03275	369	BEACON ST	BBBH	9/16/2003
01387	154	BERKELEY ST	CENT	9/16/2003
03284	74	GEORGIA ST	ROXB	9/8/2003
02280	100	WEST SECOND ST	SBOS	9/8/2003
01241	78	KINGSDALE ST	ROXB	9/8/2003
03158	0	BROADLAWN PARK	WROX	9/8/2003
02038	14	TRULL ST	NDOR	8/27/2003
03226	5170	WASHINGTON ST	WROX	8/22/2003
02401	942	HYDE PARK AV	HYDE	8/22/2003
01258	77	KINGSDALE ST	ROXB	8/21/2003
03232	15	VINELAND ST	ALBR	8/18/2003
03194	70	HAZELTON ST	MATP	8/18/2003
01237	88	NIGHTINGALE ST	ROXB	8/15/2003
03058	85W	INTERVALE ST	ROXB	8/15/2003
03228	128	BUTTONWOOD ST	NDOR	8/7/2003
03210	408	MERIDIAN ST	EBOS	8/4/2003
02375	21	WOODDALE AV	MATP	8/4/2003
02430	460	HARRISON AV	SEND	8/4/2003
03233	314	COMMONWEALTH AV	BBBH	7/31/2003
03241	259	QUINCY ST	ROXB	7/31/2003
03213	60	INTERVALE ST	ROXB	7/22/2003
03164	381	WEST BROADWAY	SBOS	7/22/2003
03163	112	WEST CONCORD ST	SEND	7/17/2003
02327	39	FENTON ST	SDOR	7/16/2003
03126	57	BROOKSIDE AV	ROXB	7/16/2003
02404	177	LONGWOOD AV	FEKE	7/16/2003
03085	1499	TREMONT ST	JAPL	7/12/2003
03078	36	HOLYOKE ST	BBBH	7/12/2003
03222	48	GENEVA AV	ROXB	7/8/2003
03134	25	HARVARD WY	ALBR	7/8/2003
03166	250	COLUMBIA RD	ROXB	7/3/2003
03143	1	AVON ST	JAPL	7/3/2003
03171	43	LOURDES AV	JAPL	7/1/2003
03176	392	COLUMBIA RD	SDOR	6/30/2003
02042	71	CHURCH ST	NDOR	6/30/2003
03141	447	SHAWMUT AV	SEND	6/27/2003
03173	159	EAST COTTAGE ST	NDOR	6/27/2003
03188	9	WEST SCHOOL ST	CHAR	6/27/2003
03167	246	BUNKER HILL ST	CHAR	6/24/2003
03030	1151	CENTRE ST	JAPL	6/23/2003
03100	628	AMERICAN LEGION HWY	ROSL	6/19/2003
02391	530	AMERICAN LEGION HWY	ROSL	6/13/2003
03159			ALBR	6/13/2003
02190	140	WEST THIRD ST	SBOS	6/10/2003
02487	18-21	THRUSH ST	WROX	6/10/2003
03106	141	B ST	SBOS	6/9/2003
02499	150	FREEPORT ST	SDOR	6/4/2003
03116	120	MOUNTFORT ST	FEKE	5/29/2003
03109	41	DIMOCK ST	ROXB	5/28/2003
02231	151	OLD COLONY AV	SBOS	5/19/2003
03152	233	CONDOR ST	EBOS	5/16/2003
03090	29	PETERBOROUGH ST	FEKE	5/15/2003

Table 8 - 2
Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
03034	910	BEACON ST	FEKE	5/12/2003
02510	188	LONGWOOD AV	FEKE	5/12/2003
02282	460	WALK HILL ST	MATP	5/5/2003
03088	142	WEST NINTH ST	SBOS	5/5/2003
03042	59	RIVER ST	BBBH	5/1/2003
03057	113	CENTRAL AV	HYDE	4/30/2003
03074	146	WEST ST	HYDE	4/22/2003
02230	1779	CENTRE ST	WROX	4/16/2003
02232	219	CAMBRIDGE ST	ALBR	4/16/2003
03049	5	MINOT PARK	SDOR	4/16/2003
02310	1	OSWALD ST	JAPL	4/10/2003
02577	80	SAINT THOMAS MORE RD	ALBR	4/8/2003
03097	1190	MASSACHUSETTS AV	NDOR	4/4/2003
03053	3600	WASHINGTON ST	JAPL	4/3/2003
03091	39	MAPLE ST	ROXB	4/3/2003
02480	1	LANGFORD PARK	ROXB	4/3/2003
03035	73	HANO ST	ALBR	4/3/2003
03039	4619	WASHINGTON ST	ROSL	4/3/2003
99147	23	GREW AV	ROSL	3/31/2003
03070	157	FULLER ST	SDOR	3/24/2003
02494	7	WOODROW AV	MATP	3/22/2003
03073	5000	WASHINGTON ST	WROX	3/20/2003
03022	895	MASSACHUSETTS AV	NDOR	3/15/2003
03009	7	MELNEA CASS BLVD	ROXB	2/28/2003
03007	462	WASHINGTON ST	ALBR	2/16/2003
02156	60-80	POND ST	JAPL	2/14/2003
02520	1	A ST	SBOS	2/14/2003
02454	1401	CENTRE ST	ROSL	2/5/2003
02415	688	MASSACHUSETTS AV	SEND	2/5/2003
01249	144	CEDAR ST	ROXB	2/5/2003
02413	282	COLUMBUS AV	SEND	2/5/2003
03005	41	PARLEY AV	JAPL	1/30/2003
02385	143	WEST RUTLAND SQ	BBBH	1/15/2003
02445	174	HAMPDEN ST	ROXB	1/15/2003
02362	250	NORTH BEACON ST	ALBR	1/10/2003
02159	26	WALES ST	ROXB	1/9/2003
02476	24	KNOWLTON ST	SBOS	1/3/2003
02509	516	WARREN ST	ROXB	12/26/2002
02179	440	HUNTINGTON AV	FEKE	12/26/2002
02505	124	WARREN ST	ROXB	12/26/2002
02125	140	DUDLEY ST	ROXB	12/26/2002
02483	525	EAST SECOND ST	SBOS	12/24/2002
01418	296	ALLSTON ST	ALBR	12/20/2002
02333	135	E ST	SBOS	12/20/2002
02364	1	MALCOLM X BLVD	ROXB	12/10/2002
01322	65	BRADEEN ST	ROSL	12/9/2002
02086	107	HOMES AV	SDOR	11/26/2002
02409	37	COLCHESTER ST	HYDE	11/12/2002
02377	19	BELLFLOWER ST	NDOR	10/28/2002
02236	18	BRIMMER ST	BBBH	10/28/2002
01065	65	ALLERTON ST	ROXB	10/25/2002
02112	5	ROANOKE AV	JAPL	10/24/2002
02063	33	RUTLAND ST	SEND	10/24/2002
02283	10	STURTEVANT ST	SDOR	10/11/2002
00139	13	MELNEA CASS BLVD	ROXB	10/4/2002
02305	40	BELGRADE AV	ROSL	9/20/2002
02237	541	CAMBRIDGE ST	ALBR	9/20/2002
02172	35	ASTORIA ST	SDOR	9/13/2002
02314	18	ROBIN ST	WROX	9/6/2002
02273	11	VERSHIRE ST	WROX	9/4/2002
02201	5335	WASHINGTON ST	WROX	9/3/2002
02266	5	LAWN ST	JAPL	8/22/2002
02269		FISHER AV	JAPL	8/22/2002
02064	239	HEATH ST	JAPL	8/22/2002
02268	3	WENSLEY ST	JAPL	8/22/2002

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Private Infiltration Devices Installed 1993-2009

PROJECT	STREET NUMBER	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
02267	88	WENSLEY ST	JAPL	8/21/2002
02264	179	HEATH ST	JAPL	8/20/2002
02111	90	WESTLAND AV	FEKE	8/13/2002
01130	64	BRADSHAW ST	ROXB	8/13/2002
02187	66	COMMONWEALTH AV	BBBH	8/7/2002
02183	484	BEACON ST	BBBH	8/7/2002
02255	8	MOHAWK ST	SBOS	8/6/2002
01107	193	TALBOT AV	MATP	8/2/2002
02278	91	SPENCER ST	SDOR	8/1/2002
02004	1800	COLUMBUS AV	ROXB	8/1/2002
02214	55	NEW DUDLEY ST	ROXB	7/30/2002
02224	34	ALGONQUIN ST	SDOR	7/26/2002
02105	22	PENDER ST	WROX	7/25/2002
02213	0	TREMONT ST	CENT	7/25/2002
02010	100	HEBRON ST	MATP	7/17/2002
02002	509	CENTRE ST	JAPL	7/10/2002
01438	1231	ADAMS ST	SDOR	6/27/2002
02149	165	CHESTNUT HILL AV	ALBR	6/24/2002
02163	37	DANFORTH ST	JAPL	6/12/2002
02151	7	NEPONSET CT	ROSL	6/6/2002
02104	1670	HYDE PARK AV	HYDE	5/21/2002
02143	74	GARNET RD	WROX	5/13/2002
02098	22	SHANLEY ST	ALBR	4/23/2002
01298	2	PERKINS ST	JAPL	4/16/2002
02087	17	GREATON RD	WROX	4/10/2002
02078	267	FAIRMOUNT AV	HYDE	3/20/2002
02057	23	ELM ST	SDOR	2/26/2002
02046	50	B ST	SBOS	2/22/2002
02020	9	EVERETT ST	SDOR	2/14/2002
02025	18	LEDGE HILL RD	WROX	2/1/2002
01264	444	QUINCY ST	SDOR	1/22/2002
01470	66	FENWAY	FEKE	1/22/2002
01113	430	CANTERBURY ST	ROSL	10/12/2001
01248	471	COMMERCIAL ST	CENT	10/9/2001
01280	380	AMORY ST	ROXB	9/28/2001
00419	2961	WASHINGTON ST	ROXB	9/25/2001
01063	873	HARRISON AV	SEND	7/17/2001
01050	61	SHIRLEY ST	ROXB	7/11/2001
01067	30	LOURDES AV	JAPL	6/14/2001
01036	275	WEST BROADWAY	SBOS	6/7/2001
01152	159	WEST SIXTH ST	SBOS	6/1/2001
01037		MASSACHUSETTS AV	SEND	4/11/2001
01047	11	IONA ST	ROSL	3/28/2001
01008	55	SHARP ST	SDOR	3/19/2001
01018	35	ELLINGTON ST	ROXB	2/9/2001
01023	23	SONOMA ST	ROXB	2/5/2001
00190	84	ROSEWOOD ST	MATP	6/9/2000
98084	215	FULLER ST	MATP	3/20/1998
97012		RUTHERFORD AV	CHAR	2/27/1997
96074		SUMNER ST	EBOS	11/7/1996
95067	1434	COLUMBIA RD	SBOS	7/3/1995
93092	44	HOBART ST	ALBR	12/9/1993
93005		HARRISON AV	ROXB	11/19/1993

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Privately Installed Particles Separators
2001-2009

PROJECT	STREET N	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06173	36-50	POYDRAS ST	HYDE	12/23/2009
06070	1100	VFW PKWY	WROX	10/30/2009
09188	1071	MASSACHUSETTS AV	NDOR	10/13/2009
09093	164-166	TERRACE ST	ROXB	10/1/2009
08150	2	PALACE RD	FEKE	9/21/2009
09077	20	SOUTH ST	JAPL	9/14/2009
09022	2400	WASHINGTON ST	ROXB	8/28/2009
07402	892	RIVER ST	HYDE	8/2/2009
09091	2730	WASHINGTON ST	ROXB	7/24/2009
09123	372	RUGGLES ST	FEKE	7/19/2009
09086	1230	VFW PKWY	WROX	7/14/2009
08294	207	MARKET ST	ALBR	7/6/2009
08347	1415	HYDE PARK AV	HYDE	6/11/2009
09053	650	DUDLEY ST	NDOR	6/8/2009
08218	1135	MORTON ST	MATP	5/20/2009
03146	144	WORDSWORTH ST	EBOS	4/10/2009
08248	2-6	BEECHLAND ST	ROSL	3/31/2009
09017	1150	SARATOGA ST	EBOS	3/25/2009
09044	72	ALLEGHANY ST	JAPL	3/6/2009
09032	37-39	PERTHSHIRE RD	ALBR	2/22/2009
09027	26-30	DORR ST	ROXB	2/9/2009
08184	750	DORCHESTER AV	NDOR	1/8/2009
08262	188-196	FOSTER ST	ALBR	1/6/2009
08106	480	RUTHERFORD AV	CHAR	12/31/2008
07275	13-41	LANSDOWNE ST	FEKE	12/31/2008
08090	26	CHESTERTON ST	ROXB	11/19/2008
08188	140-156	WESTERN AV	ALBR	11/6/2008
07390	233	BLUE HILL AV	ROXB	11/6/2008
06246		HARVARD ST	SDOR	11/5/2008
07328	2	NESSLE WY	FEKE	10/31/2008
08072	940-980	AMERICAN LEGION HWY	ROSL	10/31/2008
07408	31	GERMANIA ST	ROXB	10/23/2008
08174	493-495	COMMONWEALTH AV	FEKE	9/25/2008
07094	1	MARINA PARK DR	SBOS	9/17/2008
08057	725	ALBANY ST	SEND	9/3/2008
08176	465	HUNTINGTON AV	BBBH	8/28/2008
07048	270-286	CONGRESS ST	CENT	8/26/2008
07005	1-1E	HADLEY ST	CHAR	8/22/2008
08134	250	NEW RUTHERFORD AV	CHAR	8/13/2008
07233	368	CONGRESS ST	SBOS	8/11/2008
07110	1245	ADAMS ST	MATP	8/6/2008
07403	186	WALTER ST	ROSL	7/9/2008
08139	250	ATLANTIC AV	CENT	7/3/2008
07418	633	CENTRE ST	JAPL	6/25/2008
06048	465	HUNTINGTON AV	BBBH	6/18/2008
08100	6-8	CLARIDGE TER	SDOR	5/23/2008
08024	420	E ST	SBOS	5/21/2008
07385	1228	BLUE HILL AV	MATP	4/15/2008
07416	1	GILLETTE PARK	SBOS	4/9/2008
05058	620	ALBANY ST	SEND	3/6/2008
07315		FRANKLIN HILL AV	MATP	3/5/2008

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Privately Installed Particles Separators
2001-2009

PROJECT	STREET N	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
08037	119	PORTLAND ST	CENT	2/29/2008
07389	102	ALLSTON ST	ALBR	1/30/2008
06374	550-556	DORCHESTER AV	SBOS	1/22/2008
07414	50	WEST BROADWAY	SBOS	1/18/2008
07391	106	ROBEY ST	NDOR	1/2/2008
04160	3	BLACKFAN CIR	FEKE	1/2/2008
07322	36	DONNYBROOK RD	ALBR	12/13/2007
07386	735	SARATOGA ST	EBOS	12/11/2007
07234	329	NORTHERN AV	SBOS	11/28/2007
07327	125	PARK DR	FEKE	11/17/2007
07223	53-55	ASHFORD ST	ALBR	11/16/2007
06282	98	BUSINESS ST	HYDE	10/22/2007
07249	226	HARVARD AV	ALBR	10/3/2007
07124	100	NONANTUM RD	ALBR	9/25/2007
05244	495-527	ALBANY ST	SEND	9/21/2007
05165	11	WYMAN ST	JAPL	9/10/2007
07267	220	ALFORD ST	CHAR	8/22/2007
07152	20	VINE ST	CHAR	8/17/2007
04044		WILLET ST	WROX	8/1/2007
07098	266-270	CENTRE ST	JAPL	7/18/2007
07148	154	WEST SECOND ST	SBOS	7/18/2007
07149	500	SOLDIERS FIELD RD	ALBR	7/6/2007
07059	400	FENWAY	FEKE	7/5/2007
07101	8	FARNHAM ST	ROXB	6/13/2007
07119	70	GARDNER ST	WROX	6/13/2007
06457	1300	CENTRE ST	ROSL	5/17/2007
06209	40	RIVER ST	SDOR	4/24/2007
07058	441-449	HYDE PARK AV	ROSL	4/10/2007
06455	156	LINCOLN ST	ALBR	3/20/2007
06415	435	MOUNT VERNON ST	NDOR	2/22/2007
06363	435	MOUNT VERNON ST	NDOR	2/22/2007
05333	95-111	BERKELEY ST	CENT	2/16/2007
06453	1	EASTERN AV	CENT	2/12/2007
06365	73	NEPTUNE RD	EBOS	2/5/2007
06212		FRANKLIN HILL AV	MATP	1/4/2007
05115	2	BEECHWOOD ST	JAPL	1/2/2007
04374	150	BARNES AV	EBOS	12/28/2006
06200	564-630	DUDLEY ST	NDOR	12/22/2006
06398	1714-1734	COMMONWEALTH AV	ALBR	12/17/2006
06182	60	WASHINGTON ST	ROXB	12/12/2006
02081	375-401	MOUNT VERNON ST	NDOR	11/13/2006
05089	81	FAIRMOUNT AV	HYDE	11/3/2006
05277	6	DRY DOCK AV	SBOS	10/31/2006
06166	125	SOUTH HUNTINGTON AV	JAPL	10/23/2006
06145	245	RIVER ST	MATP	10/23/2006
06104	422-426	RIVER ST	MATP	10/20/2006
06197	50	LEWIS ST	EBOS	10/12/2006
06051	99-111	SUMNER ST	EBOS	8/23/2006
06210	380	TALBOT AV	MATP	8/2/2006
06105	1672R	BLUE HILL AV	MATP	7/21/2006
06115	3025	WASHINGTON ST	ROXB	7/20/2006

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Privately Installed Particles Separators
2001-2009

PROJECT	STREET N	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
06150	10-46	ROWE ST	ROSL	7/20/2006
06153	58	CIRCUIT ST	ROXB	7/14/2006
04373	200	FIRST AV	CHAR	6/21/2006
06085	300	CONGRESS ST	CENT	6/12/2006
05032	111-131	GREEN ST	JAPL	6/1/2006
02292	15	NORWELL ST	MATP	5/19/2006
03442	435	SUMMER ST	SBOS	5/11/2006
05370	240	PRESCOTT ST	EBOS	4/13/2006
06020	172-176	MAGNOLIA ST	ROXB	2/16/2006
00333	377-395	COMMERCIAL ST	CENT	2/16/2006
05197	7-17	MELNEA CASS BLVD	ROXB	2/8/2006
05025	80	BORDER ST	EBOS	1/27/2006
05329	64-68	NORFOLK AV	ROXB	1/26/2006
02203	49-51	NORFOLK ST	SDOR	1/26/2006
05208	83-95	BROOKLEY RD	JAPL	1/4/2006
05092	1680	VFW PKWY	WROX	12/8/2005
03124	140	GRANITE AV	SDOR	11/9/2005
05177	392	WEST FIRST ST	SBOS	11/9/2005
05193	710	GALLIVAN BLVD	SDOR	11/2/2005
04254	99	CHESTNUT HILL AV	ALBR	11/1/2005
05338	1275	VFW PKWY	OTHR	10/28/2005
05288	380	BLUE HILL AV	ROXB	10/28/2005
05292	18-20	KNOWLTON ST	SBOS	10/20/2005
05269	950	HARVARD ST	MATP	10/11/2005
05185	1106	MASSACHUSETTS AV	NDOR	10/5/2005
05255	0-10	EMERSON PL	CENT	10/5/2005
03271	0	JEWISH WAR VETERANS DR	ROSL	10/4/2005
05181	150	ALFORD ST	CHAR	8/25/2005
05241	774	ALBANY ST	SEND	8/23/2005
05205	49-63	OLDFIELDS RD	ROXB	8/18/2005
04396	4041	WASHINGTON ST	ROSL	8/15/2005
05227	109	WESTERN AV	ALBR	8/12/2005
04406	1100	MASSACHUSETTS AV	NDOR	7/28/2005
05126	1834	CENTRE ST	WROX	7/20/2005
04398	145	NORTH BEACON ST	ALBR	7/13/2005
04479	31	GERMANIA ST	ROXB	7/8/2005
04301	2410	BEACON ST	ALBR	6/27/2005
05132	33	ALLERTON ST	ROXB	6/23/2005
03459	54	BUSINESS ST	HYDE	6/15/2005
05039	142	BIGELOW ST	ALBR	4/25/2005
02181	90	SOUTHAMPTON ST	NDOR	4/14/2005
04409	65	SPRAGUE ST	HYDE	4/7/2005
04459	1	GUEST ST	ALBR	3/23/2005
04391	135	DORCHESTER AV	SDOR	2/14/2005
04229	100	TOPEKA ST	NDOR	1/12/2005
03330	23	BRADSTON ST	NDOR	12/16/2004
04033	430	CANTERBURY ST	ROSL	11/23/2004
04259	391	CONGRESS ST	SBOS	11/22/2004
04165	29	PERKINS ST	JAPL	11/3/2004
02196	545	FREEPORT ST	SDOR	10/29/2004
04268	185	COLUMBIA RD	ROXB	10/22/2004

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Privately Installed Particles Separators
2001-2009

PROJECT	STREET N	STREET NAME	NEIGHBORHOOD	SIGNATURE DATE
03318	63R	BOSTON ST	NDOR	9/27/2004
04226	1520	VFW PKWY	WROX	9/23/2004
04212	1515	VFW PKWY	WROX	8/24/2004
04171	215	CHARLES ST	CENT	8/19/2004
03296	780	GALLIVAN BLVD	SDOR	8/19/2004
04043	80	BICKFORD ST	JAPL	8/6/2004
04108	245	RIVER ST	MATP	7/22/2004
04219	84	OLD HARBOR ST	SBOS	7/14/2004
04192	25	TAFT HILL TER	ROSL	7/8/2004
04156	214	HARVARD AV	ALBR	7/6/2004
04019	931	HYDE PARK AV	HYDE	7/1/2004
04196	2315	WASHINGTON ST	ROXB	6/25/2004
04031	1927	BEACON ST	ALBR	6/23/2004
03351	555	HUNTINGTON AV	FEKE	6/21/2004
03465	21	QUEEN ST	SDOR	5/14/2004
04058	2	GLENWOOD AV	HYDE	5/4/2004
02336	1	WEST BROADWAY	SBOS	4/28/2004
03247	45	EAST NEWTON ST	SEND	4/28/2004
04054	556	ATLANTIC AV	CENT	4/23/2004
03444		BINNEY ST	FEKE	4/5/2004
03304	1160	BLUE HILL AV	MATP	4/1/2004
04015	156	PORTER ST	EBOS	2/26/2004
03283	840	MASSACHUSETTS AV	NDOR	2/19/2004
03439	2055	COLUMBUS AV	ROXB	2/12/2004
03026	150	WILLIAM F MCCLELLAN HWY	EBOS	1/9/2004
03386	350	BLUE HILL AV	ROXB	12/23/2003
03267	65	MOHAWK ST	SBOS	12/12/2003
03221	150	WILLIAM T MORRISSEY BLVD	NDOR	12/9/2003
03273	100	NORWAY ST	FEKE	11/25/2003
03282	1	CRESTVIEW RD	ROSL	10/31/2003
03238	3089	WASHINGTON ST	ROXB	10/23/2003
03234	3033	WASHINGTON ST	ROXB	10/23/2003
03250	4	COLUMBUS AV	CENT	10/22/2003
02258	1	WORRELL ST	SDOR	10/22/2003
03230	49	PARKER HILL AV	JAPL	10/16/2003
02455	1215	CENTRE ST	ROSL	10/10/2003
03127	404	WEST FIRST ST	SBOS	10/7/2003
03158	0	BROADLAWN PARK	WROX	9/8/2003
02075	500	ATLANTIC AV	CENT	8/19/2003
03255		ALLSTATE RD	NDOR	8/18/2003
03241	259	QUINCY ST	ROXB	7/31/2003
03118	39	INDUSTRIAL DR	HYDE	7/17/2003
03176	392	COLUMBIA RD	SDOR	6/30/2003
02391	530	AMERICAN LEGION HWY	ROSL	6/13/2003
02487	18-21	THRUSH ST	WROX	6/10/2003
02231	151	OLD COLONY AV	SBOS	5/19/2003
02282	460	WALK HILL ST	MATP	5/5/2003
03097	1190	MASSACHUSETTS AV	NDOR	4/4/2003
99472	1	MILDRED AV	MATP	9/25/2001

9.0 ASSESSMENT OF STRUCTURAL CONTROLS

9.1 CATCH BASINS

The Commission relies on catch basins as the primary means for preventing the transport of sediments, debris, and other contaminants to storm drains and receiving waters. As described in Section 4, the Commission's Stormwater Monitoring Program included a demonstration project to evaluate the effectiveness of catch basins in capturing solids. The demonstration project started in 2001 and concluded in 2002. The results of the demonstration project indicated that a clean and well-maintained catch basin will remove between 10 to 33 percent of the total solids from stormwater flow through the basin. The data also suggested that a catch basin's ability to remove solids diminishes as the sump of the catch basin approaches half full. These findings are consistent with the conclusions of other similar studies reported in the literature.

The Commission continued to measure the depth of sediment in the catch basin sumps on a quarterly basis through the beginning of 2004. The results showed that sediment depths in both catch basins continued to increase between April 2002 and May 2003, but began to level off and even decline, as the basins approached 50 percent full. This finding appears to confirm that the catch basin had achieved their maximum effectiveness.

Under the Commission's Catch Basin Inspection and Cleaning Program the sediment depths in one hundred catch basins were monitored between January 2002 and April 2003, to determine the factors that effect how quickly catch basins become full. Variables considered in selecting the catch basins to be monitored included slope, land use and the size of the tributary area, the type of road (highly traveled road vs. back road), and tree cover. The selected catch basins were inspected four times each on a quarterly basis and the depth of sediment measured.

No statistically significant correlation between land use and accumulation rates was observed. Similarly, no correlation was observed based on slope, drainage area, or neighborhood characteristics. Some correlation with tree cover was observed, with the catch basins located in areas of denser tree coverage demonstrating as much as 50 percent higher accumulation rates as compared to basins with little or no tree cover. The data also exhibited a seasonal correlation, with the winter months demonstrating the highest accumulation rates.

Based on the findings of the Commission's catch basin effectiveness analyses, the Commission's catch basins should continue to effectively remove sediments from stormwater runoff, provided that sediment levels are not allowed to exceed one-half of

the capacity of each catch basin's sump. Under the current citywide catch basin cleaning contract the contractor is instructed to inspect all Commission owned catch basins, and clean any basin containing at least two feet of sediment. Contractors typically complete two passes through the city each year cleaning basins as directed by the Commission. Since most of the Commission's catch basins have sump depths of four feet or more, this catch basin cleaning schedule should ensure that the Commission's catch basins continue to effectively remove sediments from stormwater runoff.

9.2 PARTICLE SEPARATORS

a. BWSC Particle Separators

The Commission currently owns 15 particle separators. All fifteen (15) particle separators were cleaned in 2009. Information regarding the various particle separators, including their locations, receiving waters, and amount of material removed at each cleaning since 2001, is summarized in Table 9 – 1.

The cleaning data provided demonstrate that there are significant differences in the amount of material removed from each separator from year to year. The reasons for this are unclear. There are many variables which could affect the amount of material retained in a separator, including, frequency and intensity of rain and snow storms, land use, topography and size of the area tributary to the particle separator, season during which the separator was cleaned and design factors. The Commission typically uses a vactor truck with a vacuum hose to clean its particle separators, and this equipment is not conducive to accurate quantification of material removed. The amount of material removed is estimated by the operator and not measured. Each operator may estimate the amount of material removed differently than others. For these reasons it is difficult to establish which factor(s) determine how well a particle separator removes solids, or why one particle separator appears to capture more sediment than another.

Also unclear, is whether the amount of material removed at each cleaning represents the cumulative sediment load captured by the device over the year, or that it is only the amount of material that happens to be in the separator at the time of cleaning. To examine this issue more closely, in 2010, the Commission plans to inspect and clean two of its particle separators once a month for three months, to determine if there is any difference in the amount of material removed. It is anticipated that the particle separators will be inspected and cleaned in March, April and May, 2010. The Commission's other particle separators will be cleaned at least once during 2010.

b. Muddy River Enhancement Program-Assessment of Particle Separators

As part of the Muddy River Enhancement Program, the Boston Parks Department and the Town of Brookline conducted a program to evaluate existing particle separators in the Muddy River drainage area to determine their effectiveness in removing pollutants from stormwater. Two of the four particle separators evaluated (Fenwood Avenue and Perkins

Table 9 - 1 BWSC Particle Separator Cleaning
Material Removed 2001-2009

Location	Neighborhood	Type	Map #	Outfall #	Receiving Water	2001-Amt of Material Removed (cubic yards)	2002-Amt of Material Removed (cubic yards)	2003-Amt of Material Removed (cubic yards)	2004-Material Removed (cubic yards)	2005-Material Removed (cubic yards)	2006-Material Removed (cubic yards)	2007-Material Removed (cubic yards)	2008-Material Removed (cubic yards)
Arnold Aroboretum	Jamaica Plain	Vortex	13F	13F011	Bussy Brook	N/A	N/A	New in 2003	Not cleaned	Not cleaned	1.00	2.50	0.25
Centre Lane	WROX	Vortex	8C	8C025,8C026	Wetlands	Cleaning not needed	0.13	0.00	Not cleaned	0.25	0.25	0.75	0.25
Centre Street	WROX	Vortex	6C	6C110	Wetlands	0.25	0.13	0.00	Not cleaned	0.50	0.50	0.50	0.00
Coleridge Street	East Boston	Box	28O	28O025	Boston Harbor	Constructed in 2001	Not cleaned	0.50	Not cleaned	0.25	0.25	0.50	2.00
Coniston Road	Roslindale	Box	12E	13I023	Stony Brook Conduit	Cleaning not needed	Cleaning not needed	0.00	Not cleaned	0.25	0.50	0.00	0.00
Denny Street	Dorchester	Vortex	15L	15L089 (CSO)	Malibu Beach	Cleaning not needed	0.13	0.00	Not cleaned	0.25	0.75	1.00	0.00
Ericsson Street	Dorchester	Box	12M	12M091	Neponset River	Cleaning not needed	0.13	0.50	Not recorded	0.25	0.25	0.25	0.00
Fenwood Road	Roxbury	Box	20G	20G161	Muddy River	Cleaning not needed	0.25	0.33	Not recorded	2.00	4.00	0.50	0.25
Lawley Street	Dorchester	Box	12L	12L092	Pine Neck Creek	Cleaning not needed	0.25	0.25	Not cleaned	0.25	0.25	0.15	0.03
Neponset Avenue	Dorchester	Box	11M	11M093	Neponset River	2.00	0.50	0.25	Not cleaned	2.00	2.75	1.50	0.50
Norton Street	Hyde Park	Box	3E	3E185	Open Channel	Cleaning not needed	0.25	0.25	Not cleaned	0.25	0.50	0.50	0.03
Perkins Street	Jamaica Plain	Vortex	17F	17F012	Jamaica Pond	Cleaning not needed	0.25	4.00	Not recorded	0.25	0.25	1.50	0.00
Waldemar Avenue	East Boston	Box	30P	30P107	Belle Isle Inlet	Cleaning not needed	0.25	0.50	Not cleaned	1.00	0 or not recorded	0.25	0.25
Waldemar Avenue	East Boston	Box	31O	31O004	Belle Isle Inlet	Cleaning not needed	0.25	0.50	Not cleaned	1.00	0 or not recorded	0.50	0.25
Walter Street	Roslindale	Vortex	12F	12E418	Wetlands	Cleaning not needed	0.25	0.00	Not cleaned	0.25	Not cleaned	0.50	0.01
TOTALS						2.25	2.75	7.08	---	8.75	11.25	10.90	3.81

Street) are owned by the Boston Water and Sewer Commission. The other two particle separators are located in Brookline.

In 2002, it was determined that the weir in the Perkins Street particle separator was not constructed according to the design and was not high enough. The Commission subsequently modified the weir to properly direct flow in the particle separator. It appears that the particle separator on Perkins Street works more effectively now that the weir has been raised.

The four particle separators were monitored during five storm events occurring between November 20, 2003 and July 13, 2004. Observations from the pilot program were noted as follows:

- Most of the storms monitored were of fairly low intensity, resulting in low flows in the particle separators. Because of the low flows, the flow meter did not become adequately submerged and it was difficult to accurately record flows during storm events.

- Sediment depths in three of the units seemed to increase quickly after they were cleaned in October, 2003 and then leveled off.

- Downstream TSS concentrations were often higher than upstream concentrations suggesting that sediments in the particle separators were being re-suspended.

- Analysis of the particle sizes retained in the particle separators, indicated that most of the sediment removed by the units was in the size range of fine gravel to fine sand (12mm to 0.08 mm).

Given the low levels of sediments retained in the particle separators it was concluded that the units were either not performing as planned or were not properly sized in accordance with the design specifications.

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems

Authorization to Discharge Under the National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq*., as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act," the

Joint Base Lewis-McChord
(hereinafter "Permittee")

is authorized to discharge from all municipal separate storm sewer system (MS4) outfalls existing as of the effective date of this permit to waters of the United States, including Murray Creek, Clover Creek, Puget Sound and other associated waters of the United States, in accordance with the conditions and requirements set forth herein. In addition, pursuant to Ecology's certification and CWA Section 401(d), 33 U.S.C. § 1341(d), this permit also authorizes discharges from the MS4 to groundwater of the State of Washington.

This permit shall become effective on October 1, 2013.[1]
This permit and the authorization to discharge shall expire at midnight, September 30, 2018.

The Permittee must reapply for permit reissuance on or before April 3, 2018, 180 days before the expiration of this permit if the Permittee intends to continue operations and discharges from the MS4 beyond the term of this permit.
Signed this 22nd day of August, 2013

//SIGNED//
Paula VanHaagen, Acting Director
Office of Water and Watersheds

This permit modification shall become effective on February 1, 2015.
This permit and the authorization to discharge shall expire at midnight, September 30, 2018.

Signed this 4th day of December, 2014

Daniel D. Opalski, Director
Office of Water and Watersheds

[1] This permit was issued to the Joint Base Lewis-McChord (JBLM) on August 22, 2013, with a scheduled effective date of October 1, 2013. On September 19, 2013, and October 22, 2013, the United States Department of the Army ("Army") filed two Motions for Extension of Time to File Petition for Review. The Environmental Appeals Board ("EAB") granted both extension requests. On November 5, 2013, the Army filed a Petition for Review of the Permit by the EAB. The Army sought review of the stormwater management program requirements in Parts II.B.5 and II.C of the Permit, as well as various compliance deadlines elsewhere in Permit Parts II and IV. On November 22, 2013, EPA notified JBLM that the contested conditions in Parts II.B.5, II.C and specified deadlines were stayed until final agency action under 40 CFR§ 124.19(f); the remaining conditions of the Permit are severable from the contested provisions and therefore became fully effective and enforceable on December 25, 2013.

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I. Applicability

A. Permit Area. This permit covers all geographic areas of the military installation located within Pierce and Thurston Counties, Washington, which are owned or operated by the Joint Base Lewis-McChord (JBLM), hereafter also referred to as "Permittee." The Permit Area includes but is not limited to the cantonment areas (comprised of and referred to as JBLM-Main, JBLM-North, and/or JBLM-McChord Field) and all military training areas. See Appendix D.

B. Discharges Authorized Under This Permit. During the effective dates of this permit, the Permittee is authorized to discharge stormwater to waters of the United States and to groundwater of the State of Washington from all portions its municipal separate storm sewer system (MS4) located within the boundaries the Permit Area described in Part I.A, subject to the conditions set forth herein. This permit also authorizes the discharge of flows categorized as allowable non-stormwater discharges in Part I.C.1.d of this permit.

C. Limitations on Permit Coverage

1. Non-Stormwater Discharges. The Permittee is authorized to discharge non-stormwater from the MS4, only where such discharges satisfy one of the following conditions:

a) The non-stormwater discharges are in compliance with a separate NPDES permit;

b) The discharges originate from emergency firefighting activities;

c) The non-stormwater discharges result from a spill and:

- are the result of an unusual and severe weather event where reasonable and prudent measures have been taken to minimize the impact of such discharge; or
- consist of emergency discharges required to prevent imminent threat to human health or severe property damage, provided that reasonable and prudent measures have been taken to minimize the impact of such discharges;

or

d) The non-stormwater discharges consist of one or more flows listed below, and such flows are managed by the Permittee in accordance with Parts II.B.3.c and II.B.6 of this permit.

- potable water sources, including but not limited to, water line flushing, hyperchlorinated water line flushing, fire hydrant flushing, and pipeline hydrostatic test water;
- Landscape watering and other irrigation runoff;

- Dechlorinated swimming pool, spa, and hot tub discharges;
- Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents;
- Diverted stream flows;
- Rising ground waters;
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
- Uncontaminated pumped ground water;
- Foundation drains;
- Air conditioning condensation;
- Irrigation water from agricultural sources that is commingled with urban stormwater;
- Springs;
- Uncontaminated water from crawl space pumps;
- Footing drains; and/or
- Flows from riparian habitats and wetlands.

2. **Discharges Threatening Water Quality**. The Permittee is not authorized to discharge stormwater that will cause, or have the reasonable potential to cause or contribute to an exceedance above the State of Washington water quality standards [including, but not limited to, those standards contained in Chapters 173-201A (surface water quality), 173-204 (sediment management) and 173-200 (groundwater) of the Washington Administrative Code]. The required response to such exceedances of these standards is defined in Part II.D.

3. **Snow Disposal to Receiving Waters.** The Permittee is not authorized to dispose of snow directly to waters of the United States or directly to the MS4(s). Discharges from Permittee-owned or operated snow disposal sites, and the Permittee's snow management practices, are authorized under this permit when such sites/practices are operated using Best Management Practices (BMPs) as required in Part II.B.6. Such BMPs must be designed to prevent pollutants in the runoff and prevent violations of the applicable water quality standards.

4. **Stormwater Discharges Associated with Industrial and Construction Activity.** The Permittee is authorized to discharge stormwater associated with industrial and construction activity through the MS4, only when such discharges are otherwise authorized under an appropriate NPDES permit.

II. Stormwater Management Program (SWMP) Requirements

A. General Requirements

1. **Implement a SWMP**. The Permittee must develop, implement and enforce a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, and protect water quality in receiving waters. The SWMP must be implemented throughout the permit area described in Part I.A.

2. **Control Discharges of Pollutants from the MS4 to the Maximum Extent Practicable**. The Permittee must comply with the SWMP actions and activities outlined in Parts II.B and II.C, the required response provisions of Part II.D, and the assessment/monitoring requirements described in Part IV. The SWMP actions and activities require the Permittee to use BMPs, control measures, system design, engineering methods, and other provisions appropriate to control discharges of pollutants from the MS4 to the maximum extent practicable.

3. **SWMP Document.** The Permittee must prepare written documentation of its SWMP no later than July 25, 2016. The SWMP documentation must be organized according to the program components in Parts II.B and II.C, and the assessment/monitoring requirements of Part IV. The SWMP document must be submitted with the subsequent Annual Report, and updated at least annually thereafter. The SWMP document must include:

   a) A summary of the legal authorities which enable the Permittee to control discharges to and from the Permittee's MS4 as required by this Permit;
   b) A description of each minimum program control measure in Parts II.B and II.C;
   c) Any additional actions implemented by the Permittee pursuant to Parts II.B and II.C; and
   d) A description of the monitoring activity pursuant to Part IV.

4. **SWMP Information.** The Permittee's SWMP must include an on-going means for gathering, tracking, maintaining, and using information in order to evaluate SWMP development and implementation, permit compliance, and to set priorities.

   a) No later than one year from permit effective date, the Permittee must track the cost, or estimated cost, to develop and implement each program component of the SWMP. A summary of costs and funding sources, by program component, must be included in each Annual Report.
   b) The Permittee must track the number of inspections, official enforcement actions, types of public education activities, etc., as stipulated by the respective program component. Information summarizing these activities during the previous reporting period must be included in the Annual Report(s).

5. **SWMP Modification.** Modifications to the SWMP requirements must be made in accordance with Part II.E of this permit.

6. **Shared Implementation**. Implementation of one or more of the minimum control measures may be shared with, or delegated to, another entity other than the Permittee. The Permittee may rely on another entity only if:

   a) The other entity, in fact, implements the control measure;
   b) The control measure, or component of that control measure, is at least as stringent as the corresponding permit requirement; and

c) The other entity agrees to implement the control measure on the Permittee's behalf. A binding written acceptance of this obligation is required. The Permittee must maintain this written obligation as part of the SWMP. If the other entity agrees to report on the minimum control measure, the Permittee must supply the other entity with the reporting requirements in Part IV.C of this permit. The Permittee remains responsible for compliance with the permit obligations if the other entity fails to implement the control measure

7. Equivalent Documents, Plans or Programs.

The Permittee may submit to EPA any documents, plans, or programs that the Permittee believes is equivalent to a required SWMP minimum control measure or component specified in this Permit. Such documents, plans or programs must be individually submitted to EPA pursuant to Parts II.E and IV.D for review at least six months prior to the compliance date of the required SWMP minimum control measure or component. If the EPA determines that the Permittee's document, plan or program is equivalent to the required SWMP minimum control measure or component, EPA will commence a permit modification procedure pursuant to 40 CFR §§122.62 and 124.5 if necessary. In determining whether a permit modification is needed, EPA will look at whether the equivalent document, plan or program needs to be cited in the Permit. As specified in Part VI.A, the filing of a request by the Permittee for a permit modification does not stay any permit condition. The Permittee must submit to EPA as specified in Parts II.E and IV.D the following documentation with each individual request for review:

a) A complete copy of the relevant document, plan or program, (or applicable section of such documentation, provided the Permittee provides the full citation of the source material); and

b) A detailed written overview identifying the required SWMP program component addressed by the submittal, and the reasons, citations and references sufficient to demonstrate that the submitted material meets or exceeds the required SWMP program component.

B. Minimum Control Measures. The following minimum control measures must be accomplished through the Permittee's Stormwater Management Program:

1. Education and Outreach on Stormwater Impacts.

a) Within two years of the effective date of this permit, the Permittee must develop, implement, and evaluate an on-going program to educate targeted audiences about the adverse impacts of stormwater discharges on local water bodies and the steps that they can take to reduce pollutants in stormwater runoff. The Permittee must target its education and outreach program activities to reach the following audiences as appropriate:

- project managers;
- contractors;
- tenants;
- environmental staff; and
- business owners and operators.

b) The primary goal of the education and outreach program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Using the topics listed in Part II. B.1.c, the Permittee may develop a prioritized schedule and plan to reach the target audiences through the on-going education effort.

c) The Permittee must select from the following topics to affect behavior change through its education and outreach program:

- Proper use, storage and disposal of household hazardous waste;
- Proper recycling;
- Appropriate stormwater management practices for commercial, food service, and automotive activities, including carpet cleaners, home-based or mobile businesses;
- Appropriate yard care techniques for protecting water quality, including proper timing and use of fertilizers;
- Proper pet waste management;
- Appropriate spill prevention practices;
- Proper management of street, parking lot, sidewalk, and building wash water;
- Proper methods for using water for dust control;
- Proper design and use of Low Impact Development (LID) techniques at new development and redevelopment sites; and
- Impacts of illicit discharges and how to report them.

d) Beginning two years from the effective date of this permit, the Permittee must measure and document the understanding and adoption of the targeted behavior[s] for at least one audience in at least one subject area listed above. The resulting measurements must be used to direct education and outreach resources most effectively through the remainder of the Permit term, The Permittee must evaluate and summarize resulting changes in adoption of the targeted behavior(s). The Permittee may meet this requirement individually or through cooperation with other entities.

e) The Permittee must document the specific education program goals, and track and maintain records of public education and outreach activities in the SWMP document.

2. Public Involvement/Participation.

a) The Permittee must comply with applicable federal, state and local public notice requirements when implementing a public involvement/participation program.

b) Within six months of the effective date of this permit, and at a regular schedule at least annually thereafter, the Permittee must conduct at least one of the following activities within the permit area throughout the permit term:

- Convene meeting(s) with the Environmental Division Chief & Environmental Compliance Program Manager, and/or other JBLM organizations as appropriate, to discuss and coordinate effective SWMP implementation, or
- Convene a JBLM Water Council or organize other means to provide opportunity for the military community to participate in development and implementation of SWMP activities.

c) No later than July 25, 2016, and annually thereafter, the Permittee must make the updated SWMP document required by Part II.A.3 available to the public on the Permittee's website.

d) At least once per year, the Permittee must provide one or more on-going volunteer activities as practicable to help actively engage residents and personnel at JBLM in understanding water resources and how their activities can affect water quality. In the SWMP document, the Permittee must maintain a log of public participation activities performed.

- Volunteer activities may include, but are not limited to, storm drain stenciling or marking program; establishing a website, email address and/or hotline for citizens to report pollution concerns; establishing a pet waste management program at American Lake or other resource areas.

3. Illicit Discharge Detection and Elimination (IDDE).

An illicit discharge is any discharge to a MS4 that is not composed entirely of stormwater as defined in 40 CFR § 122.26(b)(2). The Permittee's SWMP must include an on-going program to detect and remove illicit connections and discharges into the MS4. The Permittee must include a written description of the program in the SWMP document. No later than 180 days prior to the expiration date of this permit, the Permittee must implement an IDDE program which fully addresses each of the following components:

a) **Map of Cantonment Areas.** Within two years from the effective date of this permit, the Permittee must update and maintain a map of the MS4 located within the JBLM cantonment area. At a minimum, the cantonment area map must be periodically updated and include the following information:

- jurisdictional boundaries;
- known MS4 outfalls,
- receiving waters, other than groundwater;
- Tributary conveyances for all known MS4 outfalls. The following attributes must be mapped for all known outfalls:

  (i) tributary conveyances (type, material and size where known);

  (ii) associated drainage areas; and

  (iii) land use;
- Stormwater treatment and flow control BMPs/facilities owned, or operated, by the Permittee, including information about type, and design capacity.
- Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface waters;
- Points at which the Permittee's MS4 is interconnected with other MS4s or other storm/surface water conveyances; and
- Locations of all Permittee owned or operated industrial facilities, maintenance/storage facilities and snow disposal sites that discharge directly to the Permittee's MS4, and/or waters of the State.

The Permittee must maintain updated cantonment area MS4 maps. As necessary the Permittee must add data regarding any new connections to the MS4 which are allowed by the Permittee after the effective date of this permit. A copy of the completed MS4 map, as both a report and as an electronic file via Arc GIS compatible format, must be submitted to EPA upon request and as part of the Permit renewal application required in Part IV.B.

Consistent with national security laws and directives, the Permittee must provide mapping information to operators of adjacent regulated MS4s upon request.

b) **Map of Training Areas.** No later than 180 days prior to the expiration date of this permit, the Permittee must develop and submit to EPA a preliminary map identifying the presence of MS4 infrastructure located outside the cantonment area. The Permittee must prioritize the development of a training area MS4 map within the Muck Creek watershed/basin. The map must include the information items listed in Part II.B.3.a. A copy of the preliminary map, as both a report and as an electronic file via Arc GIS compatible format, must be submitted to EPA as part of the permit renewal application required in Part IV.B.

c) **Ordinance**. The Permittee must effectively prohibit, through ordinance or other regulatory mechanism, all illicit discharges into the MS4 to the maximum extent allowable under the legal authorities of JBLM. The ordinance or regulatory mechanism must be adopted, or existing mechanism amended, to comply with this Permit no later than thirty months from the effective date of this Permit.

The Permittee must implement appropriate enforcement procedures and actions associated with the ordinance or regulatory mechanism, including a written policy of enforcement escalation procedures for recalcitrant or repeat offenders.

Allowable Discharges: The regulatory mechanism does <u>not</u> need to prohibit the following categories of non-stormwater discharges, consistent with Part I.C.1.d:

- Diverted stream flows;
- Rising ground waters;
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
- Uncontaminated pumped ground water;
- Foundation drains;
- Air conditioning condensation;
- Irrigation water from agricultural sources that is commingled with urban stormwater;
- Springs;
- Uncontaminated water from crawl space pumps
- Footing drains;
- Flows from riparian habitats and wetlands;
- Non-stormwater discharges covered by another NPDES permit; and/or
- Discharges from emergency firefighting activities in accordance with Part 1.C.b.

Conditionally Allowable Discharges: The regulatory mechanism may allow the following categories of non-stormwater discharges, only if the stated conditions are met:

- *Discharges from potable water sources, including but not limited to water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water:* Planned discharges must be dechlorinated to a total residual chlorine concentration of 0.1 parts per million (ppm) or less, pH-adjusted, if

necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4.

- *Discharges from lawn watering and other irrigation runoff:* These discharges must be minimized through, at a minimum, public education activities (see Part II.B.2.a) and water conservation efforts.
- *Dechlorinated swimming pool, spa, and hot tub discharges:* The discharges must be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenized if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4. Discharges must be thermally controlled to prevent an increase in temperature of the receiving waters. Swimming pool cleaning wastewater and filter backwash must not be discharged to the MS4.
- *Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents*: The Permittee must reduce these discharges through, at a minimum, public education activities (see Part II.B.2.a) and/or water conservation efforts. To avoid washing pollutants into the MS4, the Permittee must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.
- *Other non-stormwater discharges.* The discharges must be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee which addresses control of such discharges.

d) **Detection and Elimination.** No later than thirty months from the effective date of this permit, the Permittee must develop and implement an on-going program to detect and address non-stormwater discharges, spills, and illicit connections into their MS4. This program must be described within the SWMP document and include:

- *Procedures for locating priority areas likely to have illicit discharges,* including areas where complaints have been recorded in the past, and areas with storage of large quantities of materials that could result in spills;
- *Field assessment activities*, including visual inspection of outfalls draining priority areas during dry weather and for the purposes of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges. The dry weather screening activities may include field tests of parameters selected by the Permitee as being indicators of discharge sources. The Permittee may utilize less expensive “field test kits,” and test methods not approved by EPA under 40 CFR Part 136, provided the manufacturer’s published

detection ranges are adequate for the illicit discharge detection purposes;

i) No later than thirty months from the effective date of this permit, the Permittee must begin dry weather field screening for non-stormwater flows from stormwater outfalls.

ii) No later than 180 days prior to the permit expiration date, the Permittee must complete field screening of at least 75% of all MS4 outfalls located within the cantonment area;

iii) Screening for illicit connections may be conducted in accordance with *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, October 2004, or another methodology of comparable effectiveness;

- *Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges which are found by or reported to the Permittee*. Procedures must address the evaluation of whether the discharge must be immediately contained and steps to be taken for containment of the discharge;

  i) Compliance with this provision will be achieved by immediately responding to all illicit discharges including spills which are determined to be constitute a threat to human health or the environment; investigating (or referring to the appropriate agency), within seven (7) days, any complaints, reports or monitoring information that indicates a potential illicit discharge, including spills; and immediately investigating (or referring) problems and violations determined to be emergencies or otherwise judged to be urgent or severe;

- *Procedures for tracing the source of an illicit discharge;* including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures; and

- *Procedures for eliminating the discharge*; including notification of appropriate authorities; notification of the responsible operator or organization; technical assistance; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated.

  i) Compliance with this provision will be achieved by initiating an investigation within twenty one (21) days of a report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection. Upon confirmation of the illicit nature of a storm drain connection, the

Permittee must take action in a documented effort to eliminate the illicit connection within forty five (45) days.

e) **Tracking.** The Permittee must implement a means of program evaluation and assessment which tracks the number and type of illicit discharges identified, dry weather screening efforts, and the location and any remediation efforts to address identified illicit discharges.

f) **Education**. Within two years from the effective date of this permit, the Permittee must inform employees, businesses, and the general public within the permit area of hazards associated with illegal discharges and improper disposal of waste. This program must be conducted in concert with the public education requirements outlined in Part II.B.1.

- No later than one year from the effective date of this permit, the Permittee must list and publicize a hotline or other local means for the public and JBLM personnel to report spills and other illicit discharges. The Permittee must maintain a record of calls received and follow-up actions taken in accordance with II.B.3.d above and include a summary in the Annual Report.

g) **Training.** The Permittee must ensure that all staff responsible for the identification, investigation, termination, clean up and reporting of illicit discharges, including spills and illicit connections, are trained to conduct these activities. Orientation and training concerning the JBLM stormwater management program must be accomplished within the first six months of employment for new staff who work directly on stormwater management issues. Follow-up training must be provided as necessary to address changes in procedures, techniques or requirements. The Permittee must maintain records of relevant training provided or obtained, and the staff members trained. A summary of this training must be included in each Annual Report.

4. Construction Site Stormwater Runoff Control. Throughout the permit area, the Permittee must implement and enforce a program to reduce pollutants in stormwater runoff to the MS4 from construction activities resulting in land disturbance of greater than or equal to 5,000 square feet or more. The Permittee must include a written description of the construction site runoff control program in the SWMP document. At a minimum the program must include the following components:

a) **Oversight**. The Permittee must provide adequate direction and oversight to ensure that entities responsible for regulated construction activities within the permit area obtain authorization to discharge as necessary under the NPDES General Permit for Stormwater Discharges for Construction Activity for Federal Facilities in Washington, Permit #WAR12000F (Construction General Permit or CGP).

b) **Ordinance**. The Permittee must use an ordinance or other regulatory mechanism available under the legal authorities of JBLM to require erosion and sediment

controls, onsite materials management and sanctions to ensure compliance with the terms of the SWMP and the CGP.

c) **Enforcement.** The Permittee must maintain a list of policies and procedures which can be used to enforce construction site compliance within JBLM independent of EPA staff directly enforcing the CGP. No later than two years from the effective date of this permit, the Permittee must include this list of policies and procedures in the SWMP document, and must update the list as necessary at least annually. The Permittee must summarize in each Annual Report any enforcement actions taken at construction sites during the previous reporting period.

d) **Construction Site BMPs.** The Permittee must maintain (or incorporate by reference) a list of appropriate construction site BMPs in the SWMP document; such a list must include associated criteria for maintenance and installation of each specific practice.

e) **Contractual Language.** The Permittee must work with other responsible organizations to ensure that all Requests For Proposal (RFPs) and construction contracts for new construction proje**c**ts which will disturb 5,000 square feet or more within the permit area include specifications requiring compliance with the SWMP and, when applicable, the CGP. An example of such contract language must be included within the SWMP document.

f) **Pre-construction Site Plan Review**. The Permittee must implement procedures for reviewing all pre-construction site plans for potential water quality impacts, appropriate erosion and sediment controls, and appropriate control of other construction site materials. These procedures must include provisions for receipt and consideration of information submitted by the public. Information summarizing the number of site plans reviewed during the previous reporting period must be submitted as part of the corresponding Annual Report.

g) **Construction Site Inspection Plan**. No later than January 25, 2016, the Permittee must develop and implement a construction site inspection plan. The construction site inspection plan must describe the criteria which triggers a site inspection, and must include a mandatory timeframe within which construction sites meeting the criteria will be inspected by the Permittee's staff or its representatives.

- The Permittee must develop methods for its staff or representatives to stop work on construction sites deemed to be in non-compliance with the construction site runoff control program.
- The Permittee must develop and utilize a construction site inspection form to document all construction site inspections.
- The written construction site inspection plan, and associated inspection form, must be included in the SWMP document.
- Information summarizing the site inspections conducted by the Permittee during the previous reporting period, including the location

and total number of such inspections, must be submitted as part of the corresponding Annual Report.

- At a minimum, all sites addressed by plan must be inspected by the Permittee or their representatives at least quarterly.

h) **Training**. The Permittee must ensure that all staff responsible for preconstruction site plan review, construction site inspections (or are otherwise implementing the construction site runoff control program) are adequately trained to conduct such activities. Orientation and training concerning the JBLM stormwater management program must be accomplished within the first six months of employment for new staff who work directly on stormwater management issues. Follow-up training must be provided as necessary to address changes in procedures, techniques or requirements. The Permittee must maintain records of relevant training provided or obtained, and the staff members trained. A summary of this training occurring within the reporting period must be included in each Annual Report.

5. Stormwater Management for Areas of New Development and Redevelopment. The Permittee must use an ordinance (or other regulatory mechanism available under the legal authorities available to JBLM) to implement and enforce a program to control stormwater runoff from all public and private new development or redevelopment project sites that will disturb 5,000 square feet or more of land area.

The Permittee must include a written description of the program within the SWMP document. In each Annual Report, the Permittee must summarize the implementation status of these requirements for all new development and redevelopment project sites occurring during the relevant reporting period.

Certain projects may be exempt from specific provisions of this Part, as defined in Appendix C.

Pursuant to the procedures in Part II.A.7, the Permittee may submit to EPA for approval an alternative document, plan or program that describes functionally equivalent run-off controls to the 2012 *Stormwater Management Manual for Western Washington* and other manual provisions cited below.

At a minimum, within one year of the permit effective date, the Permittee must implement the following program components:

a) **Site Planning Procedures.** For all new development and redevelopment project sites disturbing 5,000 square feet or more, the Permittee must adopt and implement a project site planning process, including criteria for BMP selection and design; the site planning procedures must be implemented to protect water quality, and reduce the discharge of pollutants to the maximum extent practicable.

b) **Preparation of a Stormwater Site Plan.** For all new development and redevelopment project sites disturbing 5,000 square feet or more, the Permittee must require a project-specific stormwater site plan. Stormwater site plans must

be prepared consistent with Chapter 3, Volume 1-*Minimum Technical Requirements and Site Planning* of the 2012 *Stormwater Management Manual for Western Washington;* and with Chapter 3 of the *Low Impact Development Technical Guidance Manual for the Puget Sound (2012);* or an alternative document approved pursuant to Part II.A.7. For new development or redevelopment sites disturbing 5,000 square feet or more within Airport Operations Areas (AOA), stormwater site plans must be prepared consistent with the *Aviation Stormwater Design Manual (2008)* or an alternative document approved pursuant to Part II.A.7.

c) **Source Control of Pollution**. The Permittee must require the use of available and reasonable source control BMPs at all new development and redevelopment project sites disturbing 5,000 square feet or more. Source control BMPs must be selected, designed, and maintained consistent with Volume IV-*Source Control BMP*s of the 2012 *Stormwater Management Manual for Western Washington* or an alternative document approved pursuant to Part II.A.7. For new development or redevelopment sites disturbing 5,000 square feet or more within Airport Operations Areas (AOA), source control BMPs must be selected, designed and maintained consistent with the *Aviation Stormwater Design Manual (2008)* or an alternative document approved pursuant to Part II.A.7.

d) **New Development and Redevelopment Site Design to Minimize Impervious Areas, Preserve Vegetation, and Preserve Natural Drainage Systems**. For all new development and redevelopment project sites disturbing 5,000 square feet or more, the Permittee must ensure such projects are designed to minimize impervious surfaces, retain vegetation, restore native vegetation, preserve natural drainage systems considering the techniques in the 2012 *Stormwater Management Manual for Western Washington* or an alternative document approved pursuant to Part II.A.7, and meet the following requirements to the extent feasible:

- The Permittee must require site design that minimizes the project's roadway surfaces and parking areas, incorporates clustered development, and ensures that vegetated areas are designed to receive stormwater dispersion from all developed project areas;
- The Permittee must ensure that natural drainage patterns of the project site are maintained, and that discharge from the new development or redevelopment project site occurs at the natural location;
- The Permittee must ensure that the manner by which runoff is discharged from the new development project site does not cause a significant adverse impact to downstream receiving waters and/or down gradient properties; and
- The Permittee must ensure that all outfalls utilize dissipation devices.

e) **Hydrologic Performance Requirement for On-site Stormwater Management.** For all new development or redevelopment project sites disturbing 5,000 square feet or more, the Permittee must require the use of on-site stormwater management practices intended to infiltrate, disperse, retain, and/or harvest and reuse stormwater runoff as follows:

i) For lawn and landscape areas on the new development or redevelopment project site, the Permittee must ensure the soil quality meets the specifications within BMP T5.13 (Post-Construction Soil Quality and Depth) in Chapter 5 of Volume V-*Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington (2012)* or an alternative document approved pursuant to Part II.A.7. Lawn and landscape areas associated with project sites occurring within Airport Operations Areas must ensure the soil quality meets specifications in accordance with the *Aviation Stormwater Design Manual (2008)* or an alternative document approved pursuant to Part II.A.7.

ii) For new or redevelopment project sites creating or replacing 2,000 ≥ 4,999 square feet of hard surfaces, To the extent feasible, the Permittee must use stormwater dispersion or infiltration BMPs consistent with: Chapter 5 of Volume V of the 2012 *Stormwater Management Manual for Western Washington;* Chapter 3 of Volume III of the 2012 *Stormwater Management Manual for Western Washington;* the *Low Impact Development Technical Guidance Manual for the Puget Sound (2012);* or an alternative document approved pursuant to Part II.A.7. Such project sites within Airport Operations Areas must ensure that stormwater dispersion or infiltration BMPs are used consistent with those specified in the *Aviation Stormwater Design Manual (2008)* or an alternative document approved pursuant to Part II.A.7.

iii) For new development or redevelopment project sites creating or replacing 5,000 square feet or more of hard surfaces:

(1) The Permittee must ensure the post-development stormwater discharge flows from the project site do not exceed the pre-development discharge flows for the range of 8% of the 2-year peak flow to 50% of the 2-year peak flow, as calculated by using the Western Washington Hydrology Model (or other continuous runoff model). For the purposes of Western Washington Hydrology Model, the pre-development condition for all new development and redevelopment project sites must be "forested land cover" (with applicable soil and soil grade), unless reasonable historic information indicates the site was prairie prior to settlement (and may be modeled as "pasture" when using the Western Washington Hydrology Model);

or

(2) The Permittee must ensure the controls for post-development stormwater discharge flows from the project site meet the requirements for onsite stormwater management BMPs cited in List #2 of Minimum Requirement #5 in Volume 1 of the 2012 *Stormwater Management Manual for Western Washington.*

(a) The Permittee must keep written records for each new development or redevelopment project site summarizing the BMPs selected from List #2 of Minimum Requirement #5 in Volume 1 of the 2012 *Stormwater Management Manual for Western Washington,* and any feasibility determinations for not selecting higher priority BMPs from List #2;

or

(3) The Permittee must ensure the controls for post-development stormwater discharge flows from the project site are designed to retain onsite the volume of stormwater produced from the 95th percentile rainfall event.

(a) The Permittee may exempt a new development or redevelopment project site from retaining the total volume of runoff calculated to meet the 95th percentile rainfall event, provided the Permittee fully documents its determination that compliance with the performance standard is not feasible. Feasibility must be determined by evaluation against design criteria, limitations, and infeasibility criteria identified for each stormwater best management practice in the 2012 *Stormwater Management Manual for Western Washington* starting with the BMP list hierarchy in List #2 and the competing needs criteria listed in Chapter 5 of Volume V of the *2012 Stormwater Management Manual for Western Washington).*

(b) The Permittee must keep written records of all exempt project determinations. The following information regarding each exempt project identified during an annual reporting period must be included in the corresponding Annual Report:

(i) Name, location and identifying project description;

(ii) Reasons why full retention of the total volume of runoff calculated to meet the 95th percentile rainfall event is not feasible, including supporting documentation and all relevant

engineering calculations, geologic reports and/or hydrologic analysis; and

(iii) The estimated annual runoff volume that can/will be successfully managed on site and the remaining annual runoff volume for which it is deemed not feasible to successfully manage onsite.

f) **Hydrologic Performance Requirement for Flow Control.** The Permittee must ensure that new development and redevelopment project sites are designed to control post development discharge flows where such sites: create >10,000 square feet effective impervious surface area; convert ¾ acres or more from native vegetation to lawn/landscaping, and from which there is a surface discharge to a natural or manmade conveyance system; and/or, convert 2.5 acres or more of native vegetation to pasture, and from which there is a surface discharge to a natural or manmade conveyance system. For these new development or redevelopment project sites, post-development stormwater discharge flows must not exceed the pre-development discharge flows for the range of 50% of the 2-year peak flow to 100% of the 50-year peak flow, as calculated by using the Western Washington Hydrology Model (or other continuous runoff model). For the purposes of the Western Washington Hydrology Model, the pre-development condition for all new development and redevelopment project sites must be "forested land cover" (with applicable soil and soil grade), unless reasonable historic information indicates the site was prairie prior to settlement (and may be modeled as "pasture" when using the Western Washington Hydrology Model).

- The Permittee must prioritize the use of small scale dispersion or infiltration practices, or other appropriate Low Impact Development practices to meet this flow control requirement. The Permittee may not design new development or redevelopment sites to meet this hydrologic performance requirement for flow control solely through the use of large scale retention or detention practices.
- New development or redevelopment project sites that will discharge directly to the JBLM Canal, or indirectly through Outfalls #OF-4 or #OF-5, are exempt from this hydrologic performance requirement for flow control.
- Pursuant to the procedures in Appendix C.6, the Permittee may exempt a project site from full compliance with the performance standards cited above if the severe economic cost criteria referenced in Appendix C.6 prevent use of any BMPs to attain the performance standards.

g) **Runoff Treatment.** The Permittee must ensure the proper construction of stormwater treatment facilities for all new development or redevelopment sites in accordance with Appendix B of this permit.

h) **Wetlands Protection.** The Permittee must ensure that discharges to wetlands from new development or redevelopment project sites maintain the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated uses. The hydrologic analysis must use the existing land cover condition to determine the existing hydrologic conditions, unless directed otherwise by a regulatory agency with jurisdiction.

i) **Inspections**. No later than January 25, 2016, the Permittee must develop an inspection program intended to verify that the permanent stormwater facilities used for onsite management, flow control and treatment as required by this Part are properly installed and operational. The inspection plan must describe the criteria which the Permittee will use to trigger a post-construction site inspection, timeframes within which sites meeting the criteria will be inspected, and the anticipated response to address any deficiencies identified.

- The Permittee must develop and utilize a site inspection form to document all post-construction site inspections required by this subpart.
- The written post-construction site inspection plan, and associated inspection form, must be included in the SWMP document no later than two years from the effective date of this permit.
- Beginning with the 2nd Year Annual Report, and annually thereafter, information summarizing all inspections conducted by the Permittee during the previous reporting period, including the locations and total number of such site inspections, and resulting actions to address any deficiencies, must be submitted as part of the corresponding Annual Report.

j) **Operation and Maintenance.** The Permittee must ensure long term operation and maintenance (O&M) of all permanent stormwater facilities used for onsite management, flow control, and treatment. No later than three years from the effective date of this permit, the Permittee must implement O&M standards (in the form of a manual or other specific reference[s]) to address all permanent stormwater facilities used for onsite stormwater management, flow control and treatment and which are installed at new development and redevelopment project sites after the effective date of this permit. The O&M standards for all permanent stormwater facilities must be consistent with Chapter 4, Volume V-*Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington* or an alternative document approved pursuant to Part II.A.7.

- To ensure long term O&M of stormwater facilities, the Permittee must require all entities responsible for such O&M to use the referenced maintenance standards/manual required in this Part.

- The Permittee must maintain an inventory of all permanent stormwater facilities which are used for onsite stormwater management, flow control, and treatment, consistent with Part II.B.3.a of this permit, and must maintain records of all related maintenance activity.
- A summary of anticipated annual maintenance activity, by type and number of facilities, must be included in the SWMP documentation.
- A summary of facility maintenance activity accomplished during the previous reporting period must be included in the corresponding Annual Report

k) **Training**. The Permittee must ensure all staff responsible for plan review, hydrologic modeling, site inspections and enforcement necessary to implement the program outlined in Part II.B.5, are adequately trained to conduct these activities. Orientation and training concerning the JBLM stormwater management program must be accomplished within the first six months of employment for new staff who work directly on stormwater management issues. Follow-up training must be provided as necessary to address changes in procedures, techniques or requirements. The Permittee must maintain records of relevant training provided, or obtained, and the staff members trained. A summary of this training occurring within the reporting period must be included in each Annual Report.

6. Pollution Prevention and Good Housekeeping for Municipal Operations & Maintenance. Within two years from the effective date of this permit, the Permittee must update and implement its operations and maintenance (O&M) program to prevent or reduce pollutants in runoff from the Permittee's MS4 and from ongoing municipal operations. The written description of the program must be included in the SWMP document. At a minimum, the O&M program must address each of the following program components:

a) **Maintenance Standards for Permanent Stormwater Facilities**. The Permittee must establish maintenance standards for its permanent stormwater facilities used for onsite management, flow control and treatment that are protective of facility function. The purpose of a maintenance standard is to determine if maintenance of a stormwater facility is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections. Exceeding the maintenance standard between inspections is not a permit violation.

Unless there are circumstances beyond the Permittee's control, if an inspection required in Part II.B.6.b identifies that a facility's maintenance standard has been exceeded, the Permittee must perform appropriate maintenance as follows:

- Within 1 year for most facilities, except catch basins;
- Within 6 months for catch basins; and/or

- Within 2 years for maintenance that requires capital construction of less than $25,000.

Where circumstances beyond the Permittee's control prevent the maintenance activity from occurring, the Permittee must document within the corresponding Annual Report the circumstances and how they were outside the Permittee's control. Circumstances beyond the Permittee's control may include, but are not limited to: denial or delay of access by property owners; denial or delay of necessary permit approvals; and unexpected reallocations of maintenance staff or resources to perform emergency work.

b) **Inspection of Permanent Stormwater Facilities**. No later than two years from the effective date of this permit, the program must include annual inspection of all Permittee owned or operated permanent stormwater facilities used for flow control and treatment, other than catch basins. The Permittee must take appropriate maintenance actions in accordance with its adopted maintenance standards.

- The Permittee may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be included within the SWMP document and certified in accordance with Part VI.E.
- As part of the 2nd Year Annual Report, the Permittee must document the total number of Permittee-owned or operated permanent stormwater facilities used for flow control and treatment to be inspected in compliance with this Part. Subsequent Annual Reports must document summarize the Permittee's inspection and maintenance of those permanent stormwater facilities.

c) **Spot Check Inspection of Permanent Stormwater Facilities**. The Permittee must conduct spot checks of potentially damaged permanent stormwater control facilities (other than catch basins) after major storm events. For the purposes of this permit, a major storm event is rainfall greater than the 24-hour, 10 year recurrence interval. The Permittee must conduct repairs or take appropriate maintenance action in accordance with maintenance standards established above, based on the results of the spot check inspections.

d) **Inspections of Catch Basins**. The Permittee must inspect all catch basins and inlets owned or operated by the Permittee at least once before the end of the permit term. The Permittee must clean catch basins if inspection indicates cleaning is needed. Decant water and solids must be disposed of in accordance with Appendix A of this permit.

- As part of the 2nd Year Annual Report, the Permittee must report the total number of Permittee-owned or operated catchbasins to be

inspected annually in compliance with this Part; subsequent Annual Reports must document the Permittee's progress toward inspecting and maintaining all catchbasins prior to the permit expiration date.

e) **Compliance**. Compliance with the inspection requirements in Parts II.B.6.b, c. and d. above will be determined by evaluating Permittee records of an established stormwater facility inspection program. The Permittee must inspect at least 95% of the total universe of identified permanent stormwater facilities used for flow control and treatment, and 95% of all catchbasins, by the expiration date of the permit

f) **Maintenance Practices.** The Permittee must document and implement maintenance practices to reduce stormwater impacts associated with runoff from streets, parking lots, roads or highways, parks, open space, road right-of- way, maintenance yards, stormwater facilities used for flow control and treatment and from road maintenance activities located or conducted within the permit area by the Permittee or other entities. The Permittee must ensure that the following activities are conducted in a manner that is protective of receiving water quality:

- Pipe cleaning;
- Cleaning of culverts that convey stormwater in ditch systems;
- Ditch maintenance;
- Street cleaning;
- Road repair and resurfacing, including pavement grinding;
- Snow and ice control;
- Utility installation;
- Pavement striping maintenance;
- Maintaining roadside areas, including vegetation management; and
- Dust control.
- Application of fertilizer, pesticides, and herbicides, including the development of nutrient management and integrated pest management plans;
- Sediment and erosion control;
- Landscape maintenance and vegetation disposal;
- Trash management; and
- Building exterior cleaning and maintenance.

g) **Training.** The Permittee must develop and implement an on-going training program for JBLM facility maintenance staff, contracted companies, environmental project officers, or other staff whose construction, operations or maintenance job functions may impact stormwater quality. The training program must address the importance of protecting water quality; the requirements of this permit; operation and maintenance standards, inspection procedures; selection of appropriate BMPs as required in this Part; ways to perform their job activities to prevent or minimize impacts to water quality; and procedures for reporting water quality concerns, including potential illicit discharges. Orientation and training concerning the JBLM stormwater management program must be accomplished

within the first six months of employment for new staff who work directly on stormwater management issues. Follow-up training must be provided as needed to address changes in procedures, techniques, or requirements. The Permittee must maintain records of relevant training provided or obtained, and the staff members trained. A summary of this training must be included in each Annual Report.

h) **Stormwater Pollution Prevention Plans for Equipment Maintenance /Material Storage Yards.** Within two years of the effective date of this permit, the Permittee must develop and implement Stormwater Pollution Prevention Plans (SWPPP) for all heavy equipment maintenance or storage yards, and/or material storage facilities owned or operated by the Permittee within the permit area, which are not already regulated under the NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities, #WAR05-000F or another NPDES permit. Implementation of non-structural BMPs must begin immediately after the SWPPP is developed. A schedule for installation of any necessary structural BMPs must be included in the SWPPP. The Permittee may use generic SWPPPs that can be tailored to multiple similar activity sites to comply with this requirement. The SWPPP(s) must include a summary of BMPs expected to be utilized at the site and periodic visual observation of discharges from the facility by responsible staff to verify the effectiveness of BMPs used to reduce pollutants in runoff.

i) **Documentation.** Records of all permanent stormwater facility inspections, catch basin inspections, maintenance, or repair activities conducted by the Permittee must be maintained in accordance with Part IV.C of this permit, and summarized for the preceding reporting period within the corresponding Annual Report.

C. Stormwater Retrofit Report on Reduction of Pollutant Discharges to Impaired Receiving Waters.

1. The Permittee must conduct stormwater discharge, water quality and biological assessment monitoring as required in Part IV.

2. The Permittee must characterize the MS4 discharges to Clover Creek and must develop a stormwater retrofit report as described below.

a) The retrofit report must evaluate the monitoring data collected under Parts II.C.1 and IV of this Permit, and take into consideration any other relevant monitoring data available from the Washington Department of Ecology, Pierce County, or other neighboring jurisdictions, and the recommendations contained in the August 2005 *Clover Creek Basin Plan* and the 2008 *Chambers-Clover Creek Watershed Action Plan.*

b) To the extent that information evaluated in Part II.C.2.a indicates that the Permittee's MS4 discharges impact water quality, including beneficial uses, in Clover Creek, the Permittee must analyze potential locations to reduce

stormwater pollutant loadings, including sediment loadings and bank scouring caused by MS4 stormwater discharges from cantonment area sub-basins draining to Clover Creek.

c) For each potential location, the retrofit report must evaluate the feasibility of using low impact development techniques, and other controls that infiltrate, evapotranspire, harvest and re-use stormwater runoff, or which otherwise eliminate stormwater pollutant loadings, including sediment loadings and bank scouring caused by MS4 stormwater discharges, from existing surfaces discharging to Clover Creek.

d) The retrofit report will include evaluation of existing building locations where the disconnection of existing flows from rooftop downspouts into the MS4 and/or into Clover Creek could be feasible and will contribute to water quality improvement, including support of beneficial uses. The Permittee may consider using such techniques as full dispersion; downspout full infiltration systems; rain gardens; and/or other appropriate practices, as described in the 2012 *Stormwater Management Manual for Western Washington*.

e) The retrofit report must evaluate potential projects and project locations to mitigate water quality impacts identified therein based on the following considerations:
   - Monitoring data and watershed/basin plans for Clover Creek cited in Part II.C.2.a and Part IV;
   - Effectiveness in improving water quality in the receiving water, including support of beneficial uses;
   - Feasibility;
   - Cost effectiveness;
   - Pollutant removal effectiveness; and
   - Long term maintenance requirements.

f) The Permittee must submit the retrofit report to EPA as part of the 4th Year Annual Report.

g) To the extent practicable the Permittee should coordinate with Pierce County in developing the retrofit report.

h) Consistent with Part II.G and prior to the expiration date of this permit, the Permittee must initiate at least one retrofit project identified in the report and based on the evaluation cited in Part II.C.2.e above. Said retrofit project may be satisfied in connection with a redevelopment project as defined in Part II.B.5 of this permit.

3. Prior to the expiration date of this permit, the Permittee will schedule a meeting with EPA to discuss the results of the report and determine whether any specific permit terms should be included in the reissuance of the permit.

D. Required Response to Violations of Water Quality Standards.

1. The Permittee must notify EPA in writing at the EPA address listed in Part IV.D within 30 days of becoming aware that, based on credible site-specific information, a discharge from the MS4 owned or operated by the Permittee is causing or contributing to a known or likely violation of water quality standards in the receiving water. Written notification provided under this Part must, at a minimum, identify the source of the site-specific information; describe the location, nature and extent of the known or likely water quality standard violation in the receiving water; and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For on-going or continuing violations, a single written notification to EPA will fulfill this requirement.

2. In the event that EPA determines, based on a notification from the Permittee as provided under Part II.D.1 or through any other means, that a discharge from the MS4 owned or operated by the Permittee is causing or contributing to a violation of water quality standards in a receiving water, EPA will notify the Permittee in writing that an adaptive management response outlined in Part II.D.4 below is required.

3. EPA may elect not to require an adaptive management response from the Permittee if:
   a) EPA determines that the violation of water quality standards is already being addressed by a Total Maximum Daily Load (TMDL) implementation plan or other enforceable water quality cleanup plan; or

   b) EPA concludes the MS4 contribution to the violation will be eliminated through implementation of other permit requirements, regulatory requirements, or Permittee actions.

4. Adaptive Management Response:

   a) Within 60 days of receiving a notification under Part II.D.2, or by an alternative date established by EPA, the Permittee must review its Stormwater Management Program and submit a report to EPA. The Adaptive Management Response Report must include:
      - A description of the operational and/or structural BMPs that are currently being implemented at the location to prevent or reduce any pollutants that are causing or contributing to the violation of water quality standards, including a qualitative assessment of the effectiveness of each BMP.
      - A description of potential additional operational and/or structural BMPs that will or may be implemented in order to prevent or reduce to the maximum extent practicable any pollutants that are causing or contributing to the violation of water quality standards.

- A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.
- A schedule for implementing the additional BMPs including, as appropriate: funding, training, purchasing, construction, monitoring, and other assessment and evaluation components of implementation.

b) EPA will, in writing, acknowledge receipt of the Adaptive Management Response Report within a reasonable time and notify the Permittee when it expects to complete its review of the report. EPA will either approve the additional BMPs and implementation schedule or require the Permittee to modify the report as needed. If modifications are required, EPA will specify a reasonable time frame in which the Permittee must submit and EPA will review the revised report.

c) The Permittee must implement the additional BMPs, pursuant to the schedule approved by EPA, beginning immediately upon receipt of written notification of approval.

d) The Permittee must include with each subsequent Annual Report a summary of the status of implementation and the results of any monitoring, assessment or evaluation efforts conducted during the reporting period. If, based on the information provided under this Part, EPA determines that modification of the BMPs or a specific implementation schedule is necessary EPA will notify the Permittee in accordance with Parts II.E.4, II.E.5 and/or VI.A.

E. Reviewing and Updating the SWMP

1. The Permittee must annually review their SWMP actions and activities as part of the preparation of the Annual Report required in Part IV.C

2. The Permittee may request changes to any SWMP action or activity specified in this permit in accordance with the following procedures:

a) Changes to delete or replace an action or activity specifically identified in this permit with an alternate action or activity may be requested at any time. Modification requests to EPA must include:

- An analysis of why the original actions or activity is ineffective, infeasible, or cost prohibitive;
- Expectations on the effectiveness of the replacement action or activity; and
- An analysis of why the replacement action or activity is expected to better achieve the permit requirements.

b) Change requests must be made in writing and signed by the Permittee in accordance with Part VI.E.

3. The Permittee may request EPA review and approval of any existing program or document deemed to be equivalent to a specific SWMP program component required by this permit in accordance with Part II.A.7.
4. Documentation of any of the actions or activities required by this permit must be submitted to EPA upon request.
    a) EPA may review and subsequently notify the Permittee that changes to the SWMP are necessary to:
        - Address discharges from the MS4 that are causing or contributing to adverse water quality impacts;
        - Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements; or
        - Include other conditions deemed necessary by EPA to comply with water quality standards, and/or other goals and requirements of the CWA.
    b) If EPA notifies the Permittee that changes to the SWMP are necessary pursuant to Part II.E.4.a, the notification will offer the Permittee an opportunity to propose alternative program changes to meet the objectives of the requested modification. Following this opportunity, the Permittee must implement any required changes according to the schedule set by EPA.
5. Any formal modifications to this permit will be accomplished according to Part VI.A of this permit.

F. Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation. The Permittee must implement the actions and activities of the SWMP in all areas which are added or transferred to the Permittee's MS4 (or for which the Permittee becomes responsible for implementation of stormwater quality/quantity controls) as expeditiously as practicable, but not later than one year from the date upon which the new areas were added. A summary of areas added to the Permittee's MS4, and schedules for SWMP implementation, must be documented in the next Annual Report following the transfer.

G. SWMP Resources. The Permittee must provide adequate finances, staff, equipment and other support capabilities to implement the SWMP actions and activities outlined in this permit. Consistent with Part II.A.4.a, the Permittee must provide a summary of estimated SWMP implementation costs in each Annual Report. Provisions herein should not be interpreted to require obligations or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

III. Schedule for Implementation and Compliance. This table summarizes required compliance dates as contained in this permit. The Permittee must complete SWMP actions, and/or submit documentation to EPA, as summarized below. Annual Reports must document interim and completed status of required activities, and include program summary statistics, copies of interim or final documents, etc. relevant to the reporting period.

Table III. Schedule for Implementation and Compliance as Modified 12/04/2014

Permit Citation	Description of Action	Due Date	Include in the SWMP Document?	Include In Annual Report (AR)?
General Requirements				
II.A.3	SWMP documentation	July 25, 2016; update annually as needed		Yes; Submit with 3rd Year Annual Report; with each AR thereafter
II.A.4	Track SWMP info, costs & statistics	1 year from Permit effective date	Update SWMP annually	Submit w/each AR
II.A.7	Submit equivalent documents for EPA review & approval	6 months prior to required due date	Include EPA approvals in SWMP	
VI.B	Reapply for continued permit coverage	Not later than 180 days prior to permit expiration date		
II.E.1, IV.A.1, IV.C.2	Review SWMP actions for compliance with Permit	Annually		Document compliance in each AR
II.F	Implement SWMP in all newly acquired areas	1 year from date of acquisition		Summarize in subsequent AR
II.G	Summarize SWMP implementation costs	Annually		Summarize costs in each AR
Public Education and Outreach				
II.B.1	Conduct targeted education program; Document audience understanding & behavior adoption	2 years from permit effective date	Document goals, record education activities	Summarize activity in each AR
Public Involvement and Participation				
II.B.2.b	Convene coordination meetings to ensure effective SWMP implementation	6 months from permit effective date	Describe coordination activity	Summarize activity in each AR
II.B.2.c	Make SWMP available to public via website	July 25, 2016; updates posted annually as needed	Document website in SWMP	Document website in AR
II.B.2.d	Coordinate volunteer activities	At least 1x per year	Maintain log of activities	Summarize activity in AR
Illicit Discharge Detection and Elimination (IDDE)				
II.B.3	Implement comprehensive IDDE program	Not later than 180 days prior to permit expiration date	Describe program in SWMP	Summarize activity in each AR
II.B.3.a	Update & maintain MS4 map of cantonment areas	2 years from permit effective date	Include reference in SWMP	Submit upon request and/or w/ permit renewal application
II.B.3.b	Map the presence of any MS4 in the training area, particularly in Muck Creek watershed	180 days prior to permit expiration date		Submit map with renewal application
II.B.3.d	Detect & address illicit discharges into the MS4 through dry weather screening	30 months from permit effective date	Describe in SWMP	Summarize screening efforts in AR

Table III. Schedule for Implementation and Compliance as Modified 12/04/2014

Permit Citation	Description of Action	Due Date	Include in the SWMP Document?	Include In Annual Report (AR)?
Illicit Discharge Detection and Elimination (IDDE) continued				
II.B.3.d	Complete field screening of 75% of all MS4 outfalls	180 days prior to permit expiration date	Describe in SWMP	
II.B.3.d	Procedures to characterize illicit discharges	Respond to spills Immediately;& investigate complaints, reports within 7 days		Summarize efforts in AR
II.B.3.d	Procedures for source tracing, and elimination of illicit discharge	Initiate investigation within 21 days; take action to eliminate illicit connection within 45 days		
II.B.3.f	Educate employees businesses and public; publicize hotline/reporting	1 year from permit effective date		Summarize # of calls, follow-up action taken
II.B.3.g	Train responsible staff	New staff trained within six months		Summarize training in AR
Construction Site Stormwater Runoff Control				
II.B.4	Construction Site Runoff Control Program	Ongoing	Describe in SWMP	
II.B.4.c	Maintain policies/ procedures used to enforce site controls	2 years from permit effective date	List policies and procedures	Summarize actions in AR
II.B.4.d	Maintain list of construction site BMPs to be used		Reference construction BMPs	
II.B.4.e	Include appropriate language in all contracts and requests for proposals		Provide example contract language in SWMP	
II.B.4.f	Conduct preconstruction review	Ongoing	Describe in SWMP	Summarize activity in AR
II.B.4 g	Construction site inspection plan; inspect prioritized sites at least quarterly thereafter	January 25, 2016	Include site inspection plan in SWMP	Summarize inspections & actions annually beginning in 2nd Yr AR
II.B.4.h	Train responsible staff	New staff trained within six months		Summarize in each AR
Stormwater Management for Areas of New Development and Redevelopment				
II.B.5	Manage SW from developed areas& new/redevelopment sites disturbing 5,00 sq feet or more	1 year from permit effective date	Describe in SWMP	Summarize status of required program
II.B.5.i	Develop site inspection program to verify proper installation of permanent SW facilities	January 25, 2016	Summarize inspection program in updated SWMP	Summarize inspections & actions beginning in 2nd Year AR
II.B.5.j	Ensure long term operation and maintenance of new permanent SW facilities	3 years from permit effective date	Summarize anticipated annual maintenance activity in SWMP	Summarize activity in AR
II.B.5.k	Train responsible staff	New staff trained within six months		Summarize training in AR
II.B.5.e,	Notify EPA of sites exempted from hydrologic performance requirement for onsite SW management	Annually		Document any exempted projects in Annual Report
II.B.5.f, Appendix C	Notify EPA of sites exempted from the hydrologic flow control requirement, per Appendix C	Within 15 days of decision to exempt site		Summarize any exempted projects in Annual Report

Table III. Schedule for Implementation and Compliance as Modified 12/04/2014

Permit Citation	Description of Action	Due Date	Include in the SWMP Document?	Include In Annual Report (AR)?
Pollution Prevention and Good Housekeeping for Municipal Operations & Maintenance				
II.B.6	Update and Implement O&M program	2 years from permit effective date	Describe O&M program in SWMP	Yes
II.B.6.a	Maintain SW facilities according to schedule established in permit	2 years from permit effective date	Document standards in SWMP	Yes; document circumstances preventing maintenance
II.B.6.b & c & d	Inspect 95% of permanent SW facilities/conduct spot checks after major storms; Inspect 95% all catch basins	No later than permit expiration date	Document schedules in SWMP document	Document # of facilities/catch basins in 2nd year AR; Summarize activity
II.B.6.g	Train responsible staff	New staff: within six months	Describe training in SWMP	Summarize training in AR
II.B.6.h	Develop SWPPPs for equipment maintenance/material storage areas not addressed by other permits	2 years year from permit effective date	Document areas by type/locations in SWMP	Summarize activities in AR
Stormwater Retrofit Report on Reduction of Pollutant Discharges to Impaired Receiving Waters				
II.C.2.f	Submit retrofit report	January 30, 2018	Summarize actions in SWMP	Submit retrofit report w/ 4th Year AR
II.C.2.h	Consistent with Part II.G, initiate at least one retrofit project identified in report	No later than permit expiration date		Summarize actions in 5th Year Annual Report
II.C.3	Meet with EPA to discuss results of retrofit report	No later than permit expiration date		Summarize meeting in 5th Year Annual Report
Required Response to Violations of Water Quality Standards				
II.D	Notify EPA when a discharge is causing or contributing to a violation of water quality standards	Within 30 days of Permittee knowledge		Summarize in each AR
Monitoring, Recordkeeping, and Reporting Requirements				
IV.A.2, IV.A.8	Develop monitoring and quality assurance plan to address WQ Monitoring and Biological Monitoring; update plan to include MS4 Discharge Monitoring	1 year from permit effective date; update no later than July 25, 2015	Describe monitoring plan in in SWMP	Submit WQ & Biological Monitoring/QA plan with 1st Year AR; submit updated plan with 2nd Year AR
IV.A.5, IV.C.1	Begin sampling MS4 discharges into American Lake and Clover Creek; summarize collected data in a MS4 Discharge Characterization Report	July 25, 2015		Submit MS4 Discharge Characterization Report beginning in 4th Year AR, annually thereafter
IV.A.6.a, IV.C.1	Begin water quality sampling in JBLM Canal	July 25, 2015		Submit WQ data report in 4th Year AR, annually thereafter
IV.A.6.b, IV.C.1	Begin water quality sampling in Clover Creek and Murray Creek	July 25, 2015		Submit WQ data report in 4th Year AR, annually thereafter
IV.A.7, IV.C.1	Collect two (2) benthic macroinvertebrate samples in Clover Creek /two (2) samples in Murray Creek	180 days prior to permit expiration date		Submit Biological data report in 5th Year Annual Report
IV.A.9	Notify EPA regarding Permittee decision to monitor per the RSMP	120 days from permit effective date		
IV.C.1, IV.C.2, IV.C.3	Submit Monitoring Reports and Annual Reports	Annually, on January 30th of each year, beginning in 2015		

IV. Monitoring, Recordkeeping, and Reporting Requirements

A. Monitoring

1. **Compliance Evaluation**. At least once per year, the Permittee must evaluate its compliance with these permit conditions and progress toward achieving the minimum control measures. This evaluation of permit compliance must be documented in each Annual Report required as described in Part IV.C.2.

2. **Monitoring Objectives.** The Permittee must monitor stormwater discharges, surface water quality and stream biology to assess the effectiveness of the SWMP to minimize the impacts from MS4 discharges. The Permittee must conduct monitoring to estimate phosphorus loading from its MS4 discharges into American Lake; characterize water quality discharging through the JBLM Canal; characterize water quality in Clover Creek and Murray Creek; assess baseline biological conditions in Clover Creek and Murray Creek; and conduct monitoring to determine pollutant loading into Clover Creek from the MS4. Within one year from the effective date of this permit, the Permittee must develop a monitoring plan to address the objectives of Parts IV.A.6, IV.A.7 and IV.A.8. The initial monitoring plan must be submitted as part of the 1st year Annual Report. No later than July 25, 2015, the Permittee must update the monitoring plan to address the objectives of Part IV.A.5 and IV.A.8, and submit the updated plan with the 2nd year Annual Report.

3. **Representative Sampling.** Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

4. **Monitoring Procedures.** Monitoring must be conducted according to test procedures approved under 40 CFR Part 136. Where an approved 40 CFR Part 136 method does not exist, and other test procedures have not been specified, any available method may be used after approval from EPA.

5. **Stormwater Discharge Monitoring.**

   a) No later than July 25, 2015, the Permittee must sample at least quarterly from at least one stormwater outfall discharging to American Lake. This monitoring must include stormwater flow measurements collected using automated or manual sampling methods. Samples must be analyzed for total phosphorus as summarized in Table IV.A.i.

   b) At a minimum, over a period of 24 consecutive months the Permittee must collect monthly samples of MS4 discharges into Clover Creek, as specified in Table IV.A.ii below.

   c) The Permittee must collect automated flow weighted composite samples to fully characterize two individual storm events each year for two years during the beginning of the wet weather season (~October 15- Nov 15) discharging to Clover Creek. As indicated in Part IV.A.2, the Permittee must update or create a Quality

Assurance Plan (QAP) which clearly identifies all methods and protocols used in the composite sampling. All data collected must be summarized and reported to EPA annually as part of the corresponding Annual Report.

d) Beginning with the 4th Year Annual Report, any data collected from the selected stormwater outfall(s) discharging to American Lake and Clover Creek must be summarized into a MS4 Discharge Characterization Report and submitted to EPA annually as part of the corresponding Annual Report.

Table IV.A: MS4 Discharge Monitoring For American Lake and Clover Creek

Table IV.A.i: American Lake MS4 Outfall Monitoring

Parameter	Monitoring requirements		
	Sample location[1]	Sample frequency[2]	Sample Type
Flow (cfs)	See below	Quarterly	Composite
Total Phosphorus (mg/L)	See below	Quarterly	Composite

[1]At least one (1) MS4 outfall discharging into American Lake, location(s) to be selected by Permittee.
[2] Samples must be collected at least quarterly during a storm event sufficient to produce a discharge.

Table IV.A.ii: Clover Creek MS4 Outfall Monitoring

Parameter	Monitoring requirements		
	Sample location[1]	Sample frequency[2]	Sample Type
Flow (cfs)[3]	See below	See below	Composite
Oil and Grease	See below	See below	Grab
Dissolved Oxygen (mg/L)	See below	See below	Composite, via *in situ* probe
pH (s.u)	See below	See below	Composite, via *in situ* probe
Fecal coliform bacteria (cfu/100mL)	See below	See below	Grab
Total Nitrogen (mg/L)	See below	See below	Composite
Total Phosphorus (mg/L)	See below	See below	Composite
Total Suspended Solids (mg/L)	See below	See below	Composite
Turbidity (NTU)	See below	See below	Composite, via *in situ* probe
Total and Dissolved Copper (µ/L)	See below	See below	Composite
Total and Dissolved Zinc (µ/L)	See below	See below	Composite
Hardness (mg/L)	See below	See below	Composite

[1] Samples must be collected from at least two (2) outfall locations discharging to Clover Creek.
[2] Over a period of twenty four (24) consecutive months, the Permittee must collect samples monthly at both outfall locations.
[3] Stormwater flow measurements must be collected using automated or manual sampling methods.

6. Water Quality Monitoring.

a) **Water Quality in the JBLM Canal**. No later than July 25, 2015, the Permittee must begin a water quality monitoring program within the JBLM Canal. Over a period of 24 consecutive months, the Permittee must collect water quality samples at least quarterly, for a total of eight (8) quarterly samples. In addition, the Permittee must also collect at least five (5) individual samples during "high flow" storm events, at a frequency to be determined by the Permittee. This monitoring must include flow measurement(s) using automated or manual sampling methods. All samples collected must be analyzed for the parameters listed in Table IV.B. All monitoring of water quality within the JBLM Canal, comprised of the minimum thirteen (13) sampling events described above, must be completed no later than 180 days prior to the expiration date of the permit. Beginning with the 4th Year Annual Report, any monitoring data representing water quality discharging through the JBLM Canal must be summarized and reported to EPA annually as part of the corresponding Annual Report.

b) **Water Quality in Clover Creek and Murray Creek**. No later than July 25, 2015, the Permittee must begin a water quality monitoring program in both Murray Creek and Clover Creek. This monitoring must include flow measurement(s) using automated or manual sampling methods. All samples must be analyzed for the parameters identified in Tables IV.C and IV.D, respectively. Beginning with the 4th Year Annual Report, any monitoring data representing water quality in Clover Creek and Murray Creeks must be summarized and reported to EPA annually as part of the corresponding Annual Report

Table IV.B: Water Quality Monitoring Requirements for JBLM Canal

Parameter	Monitoring requirements	
	Sample location[1]	Sample frequency[2]
Flow (cfs)	See below	See below
Temperature (C°)	See below	See below
Dissolved Oxygen (mg/L)	See below	See below
pH (s.u.)	See below	See below
Fecal coliform bacteria (cfu/100mL)	See below	See below
Total Nitrogen (mg/L)	See below	See below
Total Phosphorus (mg/L)	See below	See below
Total Suspended Solids (mg/L)	See below	See below
Turbidity (NTU)	See below	See below
Total and Dissolved Copper(µ/L)	See below	See below
Total and Dissolved Zinc(µ/L)	See below	See below
Hardness (mg/L)	See below	See below

[1] Samples must be collected from at least one (1) location within the JBLM Canal, downstream of all MS4 discharges/other flows entering the Canal, and prior to discharge into Puget Sound.
[2] Over a period of twenty four (24) consecutive months, the Permittee must collect samples quarterly, for a minimum of four samples per year, resulting in a minimum total of eight quarterly samples. An additional five (5) individual samples must be collected during "high flow" storm events, at a frequency to be determined by the Permittee.

Table IV.C: Water Quality Monitoring Requirements for Murray Creek

Parameter	Monitoring requirements	
	Sample location[1]	Sample frequency[2]
Flow (cfs)	See below	Quarterly
Temperature (C°)	See below	Quarterly
Dissolved Oxygen (mg/L)	See below	Quarterly
pH (s.u.)	See below	Quarterly
Fecal coliform bacteria (cfu/100mL)	See below	Quarterly
Total Nitrogen (mg/L)	See below	Quarterly
Total Phosphorus (mg/L)	See below	Quarterly
Total Suspended Solids (mg/L)	See below	Quarterly
Turbidity (NTU)	See below	Quarterly
Total and Dissolved Copper(µ/L)	See below	Quarterly
Total and Dissolved Zinc(µ/L)	See below	Quarterly
Hardness (mg/L)	See below	Quarterly

[1] A minimum of one location in Murray Creek, to be selected by the Permittee.
[2] A minimum of four (4) samples must be collected in each calendar year.

Table IV.D: Water Quality Monitoring Requirements for Clover Creek

Parameter	Monitoring requirements	
	Sample location[1]	Sample frequency[2]
Flow (cfs)	See below	Quarterly
Temperature (C°)	See below	Quarterly
Dissolved Oxygen (mg/L)	See below	Quarterly
pH (s.u.)	See below	Quarterly
Fecal coliform bacteria (cfu/100mL)	See below	Quarterly
Total Nitrogen (mg/L)	See below	Quarterly
Total Phosphorus (mg/L)	See below	Quarterly
Total Suspended Solids (mg/L)	See below	Quarterly
Turbidity (NTU)	See below	Quarterly
Total and Dissolved Copper(µ/L)	See below	Quarterly
Total and Dissolved Zinc(µ/L)	See below	Quarterly
Hardness (mg/L)	See below	Quarterly

[1] A minimum of one location in Clover Creek as it exits Permit Area, to be selected by the Permittee.
[2] A minimum of four (4) samples must be collected in each calendar year.

7. **Biological Monitoring.** No later than 180 days prior to the expiration date of this permit, the Permittee must collect at least two (2) benthic macroinvertabrate samples in Murray Creek and at least two (2) benthic macroinvertabrate samples in Clover Creek. One sampling event per waterbody must be conducted between the months August-October within any calendar year of the permit term. Sample locations should be in close proximity to the water quality monitoring locations identified by the Permittee to comply with Part IV.A.6.b. The Permittee must use benthic macroinvertebrate monitoring protocols which are consistent with the Pierce County Watershed Health Monitoring Project, Thurston County's Water Resources Monitoring Program, and/or

other contemporaryWestern Washington benthic macroinvertebrate monitoring programs. Each sample must be analyzed and scored using the Puget Sound Lowlands benthic index of biological integrity (B-IBI), as described at http://pugetsoundstreambenthos.org/SiteMap.aspx. The Permittee may elect to opt out of this monitoring requirement, as described below in Part IV.A.9.

8. Quality Assurance Requirements. The Permittee must develop a quality assurance plan (QAP) for all monitoring required in this Part. The QAP must be developed concurrent with the monitoring plan as described in Part IV.A.2**.** Any existing QAPs may be modified to meet the requirements of this section. Upon completion of the monitoring plan and QAP, the Permittee must submit the combined document to EPA with the 1st year Annual Report. Any update to the QAP must be submitted to EPA as part of the subsequent Annual Report.

a) The QAP must be designed to assist in planning for the collection and analysis of stormwater discharge, water quality and biological/benthic macroinvertebrate samples in support of the permit, and in explaining data anomalies when they occur.

b) Throughout all sample collection and analysis activities, the Permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in the following documents:

- *EPA Requirements for Quality Assurance Project Plans EPA-QA/R-5* (EPA/240/B-01/003, March 2001). A copy of this document can be found electronically at: http://www.epa.gov/quality/qs-docs/r5-final.pdf
- *Guidance for Quality Assurance Project Plans EPA-QA/G-5*, (EPA/600/R-98/018, February, 1998). A copy of this document can be found electronically at: http://www.epa.gov/r10earth/offices/oea/epaqag5.pdf

c) At a minimum, the QAP must reflect the content specified in the EPA documents listed in Part IV.A.8.b, and include the following information:

- Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements;
- Map(s) indicating the location of each sampling point;
- Qualification and training of personnel; and
- Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the Permittee.

d) The Permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.

e) Copies of the QAP must be maintained by the Permittee and made available to EPA upon request.

9. Optional Participation in the Puget Sound Regional Stormwater Management Program (RSMP) Status and Trends Monitoring.

a) The purpose of this part is to allow the Permittee the option to contribute to the Regional Stormwater Management Program (RSMP) Status and Trends Monitoring of small streams and marine nearshore in Puget Sound. The RSMP Status and Trends monitoring is described in Part S.8.b of the Washington Department of Ecology-issued *Western Washington Phase II Municipal Stormwater Permit* (effective August 1, 2013) through other sources.[2] The Permittee may elect to participate in the RSMP Status and Trends Monitoring program in lieu of the monitoring requirements specified in IV.A.7 of this permit. The Permittee's decision to participate in the RSMP will be considered binding through the duration of the permit term. The Permittee is solely responsible for discussing and arranging its potential in the RSMP with the program organizers prior to the EPA notification deadline in Part IV.A.9.c.

b) This optional "participation in the RSMP" requires the Permittee to make a monetary payment, or series of annual payments, based on a per capita calculation to be assessed by the RSMP organizers in a manner similar to the calculated contributions from other municipal RSMP participants.

c) Not later than 120 days from the effective date of this permit, the Permittee must inform EPA in writing of its decision to either conduct the monitoring described in Part IV.A.7, or to participate in the Puget Sound RSMP. The notification letter must be submitted to the EPA address indicated in Part IV.D.

B. Recordkeeping

1. Retention of Records. The Permittee must retain records and copies of all information (including all monitoring, calibration and maintenance records and all original strip chart recordings for any continuous monitoring instrumentation, copies of all reports required by this permit, a copy of the NPDES permit, and records of all data used to complete the application for this permit) for a period of at least five years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended at the request of the EPA at any time. Records include all information used in the development of the SWMP, all monitoring data, copies of all reports, and all data used in the development of the permit application.

2. Availability of Records. The Permittee must submit the records referred to in Part IV.B.1 to EPA only when such information is requested. The Permittee must retain all records comprising the SWMP required by this permit (including a copy of the permit

[2] See *Western Washington Phase II Municipal Stormwater Permit* available online at http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIIww/wwphiipermit.html; and the RSMP website at http://www.ecy.wa.gov/programs/wq/stormwater/municipal/rsmp.html

language and all Annual Reports) at a location accessible to the EPA. The Permittee must make records (including the permit application, Annual Reports and the SWMP document) available to the public if requested to do so in writing pursuant to the Freedom of Information Act. The public must be able to request and view the records during normal business hours, and the Permittee must make all reasonable efforts to comply with such requests. As allowed by the Freedom of Information Act, the Permittee may charge fees for copies of documents provided in response to written requests from the public.

C. Reporting Requirements

1. **Stormwater Discharge, Water Quality and Biological Monitoring Reports**. All available stormwater discharge and water quality monitoring data collected during the prior reporting period(s) must be submitted as part of the 4th and 5th Year Annual Reports. If the Permittee conducts more frequent monitoring than is required by this Permit, the results of such monitoring must also be submitted. All biological monitoring data and corresponding Puget Sound Lowlands I-IBI scores must be submitted as part of the subsequent Annual Report following the sample collection. At a minimum, this Report must include:
   a) Dates of sample collection and analyses;
   b) Results of analytical samples collected;
   c) Location of sample collection;
   d) Summary analysis of data collected.
2. **Annual Report.** No later than January 30, 2015, and annually thereafter, the Permittee must submit an Annual Report to EPA. The reporting periods and associated due dates for each Annual Report are specified in Table IV.E. Copies of all Annual Reports must be made available to the public, at a minimum, upon written request to the Permittee pursuant to the Freedom of Information Act.

Table IV.E - Annual Report Deadlines

Annual Report	Reporting Period	Due Date
1st Year Annual Report	October 1, 2013–September 30, 2014	January 30, 2015
2nd Year Annual Report	October 1, 2014-September 30, 2015	January 30, 2016
3rd Year Annual Report	October 1, 2015-September 30, 2016	January 30, 2017
4th Year Annual Report	October 1, 2016-September 30, 2017	January 30, 2018
5th Year Annual Report	October 1, 2017-September 30, 2018	September 30, 2018

3. **Contents of the Annual Report.** The following information occurring during the relevant reporting period must be summarized or included within each Annual Report:

   a) An updated SWMP document, as required in Part II.A.3;

   b) A report or assessment of compliance with this permit and progress towards achieving the identified actions and activities for each minimum control measure in Parts II.B and II.C. Status of each program area must be addressed, even if activity has previously been completed or has not yet been implemented;

   c) Results of any information collected and analyzed during the previous 12 month reporting period, including summaries of program costs and descriptions of funding sources, information used to assess the success of the program at improving water quality to the maximum extent practicable, or other relevant information;

   d) Stormwater Discharge, Water Quality and Biological Monitoring Reporting, as required in Part IV.C.1;

   e) A summary of the number and nature of all inspections, formal enforcement actions, and/or other similar activities performed by the Permittee;

   f) A summary of all public and private new development or redevelopment project sites that disturb 5,000 square feet or more of land area commencing during the reporting period, including project name, project location, total acreage of new development or redevelopment, and all documentation related to any project sites exempted by JBLM or its counterparts from the provisions of Part II.B.5 pursuant to Permit Appendix C;

   g) A summary list of any water quality compliance-related enforcement actions received from regulatory agencies other than EPA. Such actions include, but are not limited to, formal warning letters, notices of violation, field citations, or similar actions. This summary should include dates, project synopsis, and actions taken to address the compliance issue(s);

   h) Copies of completed or revised Monitoring & Quality Assurance Plan(s), retrofit plans, education materials, ordinances (or other regulatory mechanisms), equivalent documents or program materials, inventories, guidance materials, maps, or other products produced as required by this permit;

   i) A general summary of the activities the Permittee plans to undertake during the next reporting cycle (including an implementation schedule) for each minimum control measure;

   j) A description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable water quality standards;

   k) Notice if the Permittee is relying on another entity to satisfy any of the permit obligations, if applicable; and

l) A description of the location, size, receiving water, and drainage area of any new MS4 outfall(s) owned or operated by the Permittee added to the system since the previous annual reporting period.

D. Addresses. Reports and other documents to be submitted as required by this permit must be signed and certified in accordance with Part VI.E.

a) If EPA provides the Permittee of an alternative means of submitting reports during the permit term other than the manner described herein, the Permittee may use that alternative reporting mechanism in lieu of this provision.

b) One hard copy and one electronic copy (on CD ROM, or through prearranged transmission by Email as indicated below) of any submittal must be provided the following address:

EPA Region 10: United States Environmental Protection Agency
Region 10
Attention: Municipal Stormwater Program Contact
NPDES Compliance Unit
1200 6th Avenue, Suite 900 (OCE-133)
Seattle, WA 98101

c) Prior to the electronic submittal of any required documents to EPA, the Permittee must contact the EPA Region 10 NPDES MS4 Permit Program Coordinator at (206) 553-6650 or (800) 424-4372, and obtain appropriate Email contact information.

V. Compliance Responsibilities

A. Duty to Comply. The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

B. Penalties for Violations of Permit Conditions

1. **Civil and Administrative Penalties**. Pursuant to 40 CFR Part 19 and the Act, any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $37,500 per day for each violation).

2. **Administrative Penalties**. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of this Act. Pursuant to 40 CFR Part 19 and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $16,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $37,500). Pursuant to 40 CFR Part 19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $16,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $177,500).

3. **Criminal Penalties.**

   a) **Negligent Violations**. The Act provides that any person who negligently violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two years, or both.

   b) **Knowing Violations**. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six years, or both.

   c) **Knowing Endangerment**. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

d) **False Statements**. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.

D. Duty to Mitigate. The Permittee must take all reasonable steps to minimize or prevent any discharge or disposal in violation of this Permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance. The Permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the Permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Bypass of Treatment Facilities.

1. **Bypass not exceeding limitations**. The Permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Part.
2. **Notice**.
    a) Anticipated bypass. If the Permittee knows in advance of the need for a bypass, it must submit prior written notice, if possible at least 10 days before the date of the bypass.
    b) Unanticipated bypass. The Permittee must submit notice of an unanticipated bypass as required under Part V.K of this Permit.
3. **Prohibition of bypass.** The intentional bypass of stormwater from all or any portion of a stormwater treatment BMP whenever the design capacity of the treatment BMP is not

exceeded is prohibited, and the Director of the Office of Compliance and Enforcement may take enforcement action against the Permittee for such bypass, unless:

a) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated stormwater, or maintenance during normal dry weather. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of dry weather or preventive maintenance; and

c) The Permittee submitted notices as required under paragraph 2 of this Part.

4. EPA's Director of the Office of Compliance and Enforcement may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part.

G. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the Permittee meets the requirements of G.2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the Permittee must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a) An upset occurred and that the Permittee can identify the cause(s) of the upset;

b) The permitted facility was at the time being properly operated;

c) The Permittee submitted notice of the upset as required under Part V.K; and

d) The Permittee complied with any remedial measures required under Part V.D.

3. Burden of proof. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

H. Toxic Pollutants. The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

I. Planned Changes. The Permittee must give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1.The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR §122.29(b); or

2.The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in the permit.

J. Anticipated Noncompliance. The Permittee must give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

K. Twenty-Four Hour Reporting.

1. The Permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the Permittee becomes aware of the circumstances:

a) any discharge to or from the MS4 which could result in noncompliance that endangers health or the environment;

b) any unanticipated bypass that exceeds any effluent limitation in the permit (See Part V.F);

c) any upset that exceeds any effluent limitation in the permit (See Part V.G);

2. A written submission must also be provided within five days of the time you become aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. The following shall be included as information which must be reported within 24 hours under this paragraph.

a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)

b) Any upset which exceeds any effluent limitation in the permit (See 40 CFR 122.41(n)(1).)

4. The Director of the Office of Compliance and Enforcement may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

5. Reports must be submitted to the addresses in Part IV.D.

L. Other Noncompliance. The Permittee must report all instances of noncompliance, not required to be reported within 24 hours, as part of each Annual Report as required in Part IV.C.2. Noncompliance reports must contain the information listed in Part V.K. of this permit

VI. General Provisions

A. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§ 122.62, 122.64, or 124.5. The filing of a request by the Permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

B. Duty to Reapply. If the Permittee intends to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. In accordance with 40 CFR §122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Director, the Permittee must submit a new application at least 180 days before the expiration date of the permit, or in conjunction with the fourth Annual Report. The reapplication package must contain the information required by 40 CFR §122.21(f) which includes: name and mailing address(es) of the Permittee(s) that operate the MS4(s), and names and titles of the primary administrative and technical contacts for the municipal Permittee(s). In addition, the Permittee must identify the identification number of the existing NPDES MS4 permit; any previously unidentified water bodies that receive discharges from the MS4; a summary of any known water quality impacts on the newly identified receiving waters; a description of any changes to the number of applicants; and any changes or modifications to the Stormwater Management Program. The re-application package may incorporate by reference the fourth Annual Report when the reapplication requirements have been addressed within that report.

C. Duty to Provide Information. The Permittee must furnish to the Director, within the time specified in the request, any information that the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee must also furnish to the Director, upon request, copies of records required to be kept by this permit.

D. Other Information. When the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to the Director, the Permittee must promptly submit the omitted facts or corrected information.

E. Signatory Requirements. All applications, reports or information submitted to the Director must be signed and certified as follows.

1. All permit applications must be signed as follows:

a) For a corporation: by a responsible corporate officer.

b) or a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

c) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a) The authorization is made in writing by a person described above;

b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the organization; and

c) The written authorization is submitted to the Director.

3. Changes to authorization. If an authorization under Part VI.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part VI.E.2 must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this Part must make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Availability of Reports. In accordance with 40 CFR Part 2, information submitted to EPA pursuant to this permit may be claimed as confidential by the Permittee. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the Permittee. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. Inspection and Entry. The Permittee must allow the Director or an authorized representative (including an authorized contractor acting as a representative of the Director), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

H. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations.

I. Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Act. (See 40 CFR §122.61; in some cases, modification or revocation and reissuance is mandatory.)

J. State/Tribal Environmental Laws

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State/Tribal law or regulation under authority preserved by Section 510 of the Act.

2. No condition of this permit releases the Permittee from any responsibility or requirements under other environmental statutes or regulations.

K. Oil and Hazardous Substance Liability. Nothing in this permit shall be constructed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under Section 311 of the CWA or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to the circumstances, and the remainder of this permit shall not be affected thereby.

VII. Definitions and Acronyms

All definitions contained in Section 502 of the Act and 40 CFR Part 122 apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided but, in the event of a conflict, the definition found in the statute or regulation takes precedence.

"Administrator" means the Administrator of the EPA, or an authorized representative.

"Air Operations Areas" or AOAs, is defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008). For the purposes of this Permit, the term AOA means any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. This includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to associated runways, taxiways, or aprons. For the purposes of this permit, the term AOA also includes the following unique subareas as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008) and described in this Part: Clearway, Object-Free Area, Runway Protection Zone, Runway Safety Area, and Taxiway Safety Areas. See: http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"AKART" means all known, available and reasonable methods of prevention, control and treatment, and refers to the State of Washington Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.

"Best Management Practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States and waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. See "stormwater control measure (SCM)."

"Bioretention" is the water quality and water quantity stormwater management practice using the chemical, biological and physical properties of plants, microbes and soils for the removal of pollution from stormwater runoff. Biorentention, for the purpose of this permit, means engineered facilities that store and treat stormwater by passing it through a specified soil profile, and either retain or detain the treated stormwater for flow attenuation. Refer to the 2012 *Stormwater Management Manual for Western Washington,* Chapter 7 of *Volume V – Runoff Treatment BMPs* for Bioretention BMP types and design specifications.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. See 40 CFR §122.41(m)(1)(i).

"Canopy Interception**"** is the interception of precipitation, by leaves and branches of trees and vegetation that does not reach the soil.

"Clearway," as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008), means a defined rectangular area beyond the end of a runway

cleared or suitable for use in lieu of runway to satisfy takeoff distance requirements. This is the region of space above an inclined plane that leaves the ground at the end of the runway. See: http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"Construction General Permit or CGP" means the current version of the U.S. Environmental Protection Agency's *NPDES General Permit for Stormwater Discharges from Construction Activities in Washington, Permit No.WAR12-000F*. The permit is posted on EPA's website at *www.epa.gov/npdes/stormwater/cgp*.

"Common Plan of Development**"** is a contiguous construction project where multiple separate and distinct construction activities may be taking place at different times on different schedules but under one plan. The "plan" is broadly defined as any announcement or piece of documentation or physical demarcation indicating construction activities may occur on a specific plot; included in this definition are most subdivisions and industrial parks.

"Construction Activity" includes, but is not limited to, clearing, grading, excavation, and other site preparation work related to construction of residential buildings and non-residential buildings, and heavy construction (e.g., highways, streets, bridges, tunnels, pipelines, transmission lines and industrial non-building structures). See "Stormwater Discharge Associated with Construction Activity."

"Control Measure" as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States and waters of the State.

"Converted vegetation" or converted vegetation areas, means the surfaces on a project site where native vegetation, pasture, scrub/shrub, or unmaintained non-native vegetation (e.g., himalayan blackberry, scotch broom) are converted to lawn or landscaped areas, or where native vegetation is converted to pasture.

"CWA" or "The Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq.

"Director" means the Environmental Protection Agency Region 10 Regional Administrator, the Director of the Office of Water and Watersheds, the Director of the Office of Compliance and Enforcement, or an authorized representative.

"Discharge" when used without a qualifier, refers to "discharge of a pollutant" as defined at 40 CFR §122.2.

"Discharge of a pollutant" means (a) any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or (b) any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This

definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

"Discharge-related Activities" include: activities which cause, contribute to, or result in stormwater point source pollutant discharges, and measures to control such stormwater discharges, including the siting, construction, and operation of best management practices to control, reduce or prevent stormwater pollution.

"Discharge Monitoring Report or DMR" means the EPA uniform national form, including any subsequent additions, revisions or modification for the reporting of self monitoring results by the Permittee. See 40 CFR §122.2.

"Disconnect" for the purposes of this permit, means the change from a direct discharge into receiving waters to one in which the discharged water flows across a vegetated surface, through a constructed water or wetlands feature, through a vegetated swale, or other attenuation or infiltration device before reaching the receiving water.

"Effective impervious surfaces" are those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. (Impervious surfaces are considered ineffective if: 1) the runoff is dispersed through at least one hundred feet of native vegetation in accordance with BMT T55.30 – "Full Dispersion" as described in Chapter 5 of Volume V of the 2012 *Stormwater Management Manual for Western Washington*; or 2) residential roof runoff is infiltrated in accordance with Downspout Full Infiltration Systems in BMP T5.10A in Volume III –*Hydrologic Analysis and Flow Control BMPs* of the 2012 *Stormwater Management Manual for Western Washington;* or 3) approved continuous runoff modeling methods indicate that the entire runoff file is infiltrated.

"Engineered Infiltration" is an underground device or system designed to accept stormwater and slowly exfiltrates it into the underlying soil. This device or system is designed based on soil tests that define the infiltration rate.

"Erodible or leachable materials" means wastes, chemicals, or other substances that measurably alter the physical or chemical characteristics of runoff when exposed to rainfall. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage.

"Erosion" means the process of carrying away soil particles by the action of water.

"Evaporation" means rainfall that is changed or converted into a vapor.

"Evapotranspiration" means the sum of evaporation and transpiration of water from the earth's surface to the atmosphere. It includes evaporation of liquid or solid water plus the transpiration from plants.

"Extended Filtration" is a structural stormwater device which filters stormwater runoff through a soil media and collects it an under drain which slowly releases it after the storm is over.

"EPA" means the Environmental Protection Agency Regional Administrator, the Director of the Office of Water and Watersheds, or an authorized representative.

"Facility or Activity" means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

"Green infrastructure" means runoff management approaches and technologies that utilize, enhance and/or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration and reuse.

"Hard surface" means an impervious surface, a permeable pavement, or a vegetated roof.

"Hydromodification" means changes to the stormwater runoff characteristics of a watershed caused by changes in land use.

"Hyperchlorinated**"** means water that contains more than 10 mg/Liter chlorine.

"Illicit Connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit Discharge" is defined at 40 CFR §122.26(b)(2) and means any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.

"Impaired Water**"** (or "Water Quality Impaired Water") for purposes of this permit means any water body identified by the State of Washington or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards. Impaired waters include both waters with approved or established Total Maximum Daily Loads (TMDLs), and those for which a TMDL has not yet been approved or established.

"Impervious surface" means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. "Impervious surface" also means a non-vegetated surface area which causes water to run off the surface in greater quantities (or at an increased rate of flow) than the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to: roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities must be considered impervious surfaces for purposes of runoff modeling.

"Industrial Activity" as used in this permit refers to the eleven categories of industrial activities included in the definition of discharges of stormwater associated with industrial activity at 40 CFR §122.26(b)(14).

"Industrial Stormwater" as used in this permit refers to stormwater runoff from industrial activities, such as those defined in 40 CFR 122.26(b)(14)(i-xi).

"Infiltration" is the process by which stormwater penetrates into soil.

"Low Impact Development" or "LID" means a stormwater and land use management strategy that strives to mimic pre-development hydrologic processes of infiltration, filtration, storage, evaporation,and transpiration by emphasizing conservation, use of onsite natural features, site planning, and distributed stormwater management practices that integrated into a project design.

"LID Best Management Practices" or "LID practices," means the distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention/rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, minimal excavation foundations, vegetated roofs, and water re-use.

"LID Principles" means the land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

"Major storm event" as used in this permit, refers to rainfall greater than the 24 hour- 10 year-recurrence interval.

"Maintenance" means the repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and results in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems. Those usual activities may include replacement of dysfunctional facilities, including cases where environmental permits require replacing an existing structure with a different type structure, as long as the functioning characteristics of the original structure are not changed. One example is the replacement of a collapsed, fish blocking, round culvert with a new box culvert under the same span, or width, of roadway. In regard to stormwater facilities, maintenance includes assessment to ensure ongoing proper operation, removal of built up pollutants (i.e. sediments), replacement of failed or failing treatment media, and other actions taken to correct defects as identified in the maintenance standards of Chapter 4, Volume V- *Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington.* See also Road Pavement Maintenance exemptions in Appendix C of this Permit.

"MEP" or "maximum extent practicable," means the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in stormwater discharges that was

established by CWA Section 402(p). EPA's discussion of MEP as it applies to regulated small MS4s is found at 40 CFR §122.34.

"Measurable Goal" means a quantitative measure of progress in implementing a component of a stormwater management program.

"Minimize" means to reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

"MS4" means "municipal separate storm sewer system" and is used to refer to a Large, Medium, or Small Municipal Separate Storm Sewer System regulated under the federal NPDES permit program. The term, as used within the context of this permit, refers to separate storm sewer system owned or operated within the permit area by JBLM. See "municipal separate storm sewer" below and definitions at 40 CFR 122.26(b)(18), (19)

"Municipality" means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA.

"Municipal Separate Storm Sewer" is defined at 40 CFR 122.26(b)(8) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.

"Seattle Urbanized Area" means the greater Seattle, Washington, area delineated by the Year 2000 Census by the U.S. Bureau of the Census according to the criteria defined by the Bureau on March 15, 2002 (67 FR 11663) namely, the area consisting of contiguous, densely settled census block groups and census blocks that meet minimum population density requirements, along with adjacent densely settled census blocks that together encompass a population of at least 50,000 people.

"National Pollutant Discharge Elimination System" or "NPDES" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the CWA. The term includes an "approved program" delegated to a State agency.

"Native vegetation" means vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been

expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple, and vine maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

"Object-Free Area," as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008), means an area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of aboveground objects protruding above the Runway Safety Area (RSA, defined below) edge elevation, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. See:
http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"On-site Stormwater Management BMPs" as used in this Permit, means Low Impact Development BMPs or practices.

"Outfall" means a point source (defined below) at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.

"Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

"Permitting Authority" means U.S. Environmental Protection Agency, or EPA.

"Permeable pavement" means pervious concrete, porous asphalt, permeable pavers or other forms of pervious or porous paving material intended to allow passage of water through the pavement section. It often includes an aggregate base that provides structural support and acts as a stormwater reservoir.

"Pervious Surface" means any surface material that allows stormwater to infiltrate into the ground. Examples include lawn, landscape, pasture, native vegetation areas, and permeable pavements.

"Permeable pavement" or "permeable paving" means surfaces which are designed to accommodate pedestrian, bicycle, and vehicle traffic while allowing infiltration, treatment, and storage of stormwater. General categories of permeable paving systems include: open-graded concrete or hot-mix asphalt pavement; aggregate or plastic pavers; and plastic grid systems, as discussed in the *Low Impact Development Technical Guidance Manual for Puget Sound* (December 2012).

"Permanent stormwater management controls" see "post-construction stormwater management controls."

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock,

concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

"Pollutant" is defined at 40 CFR §122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

“Pollutant(s) of concern" includes any pollutant identified as a cause of impairment of any water body that will receive a discharge from a MS4 authorized under this permit.

“Pollution-generating hard surface (PGHS)” means those hard surfaces considered to be a significant source of pollutants in stormwater runoff. See the listing of surfaces under “pollution-generating impervious surface.”

“Pollution-generating impervious surface (PGIS)” means those hard surfaces or impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities; or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall. Metal roofs unless they are coated with an inert, non-leachable material (e.g., baked-on enamel coating); or .roofs that are subject to venting significant amounts of dusts, mists, or fumes from of manufacturing, commercial, or other indoor activities.

“Pollution-generating pervious surface (PGPS)” means any non-impervious surface subject to use vehicle use, industrial activities; or storage of erodible or leachable materials, wastes, or chemicals, and that receive direct rainfall or run-on or blow-in of rainfall, of pesticides and fertilizers or loss of soil. Typical PGPS include permeable pavement subject to vehicular use, lawns and landscaped areas, including golf courses, parks, cemeteries, and sports fields (natural and artificial turf). .

“Post-construction stormwater management controls” or “permanent stormwater management controls” means those controls designed to treat or control runoff on a permanent basis once construction is complete, including stormwater treatment and flow control BMPs /facilities, including detention facilities, bioretention, vegetated roofs, permeable pavements, etc.

“QA/QC” means quality assurance/quality control.

“QAP” means Quality Assurance Plan, or Quality Assurance Project Plan.

“Rainfall and Rainwater Harvesting**”** is the collection, conveyance, and storage of rainwater. The scope, method, technologies, system complexity, purpose, and end uses vary from rain barrels for garden irrigation in urban areas, to large-scale collection of rainwater for all domestic uses.

“Rain Garden” means a non-engineered shallow landscaped depression, with compost-amended native soils and adapted plants. The depression is designed to pond and temporarily store stormwater runoff from adjacent areas, and to allow stormwater to pass through the amended soil

profile. Refer to the Rain Garden Handbook for Western Washington Homeowners (WSU 2007 or as revised) for rain garden specifications and construction guidance.

"Receiving waters" means bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow. Ground water to which surface runoff is directed by infiltration. See also "waters of the state" and "waters of the United States."

"Redevelopment" for the purposes of this permit, means the alteration, renewal or restoration of any developed land or property that results in the land disturbance of 5,000 square feet or more, and that has one of the following characteristics: land that currently has an existing structure, such as buildings or houses; or land that is currently covered with an impervious surface, such as a parking lot or roof; or land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

"Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

"Regulated Construction Activities" include clearing, grading or excavation that results in a land disturbance of greater than or equal to one acre, or that disturbs less than one acre if part of a larger common plan of development or sale that would disturb one acre or more. See "Stormwater Discharge Associated with Construction Activity."

"Road maintenance" and/or "Repair of Public Streets, Roads and Parking Lots" means repair work on Permittee-owned or Permittee managed streets and parking lots that involves land disturbance including asphalt removal or re- grading of 5,000 square feet or more. This definition excludes the following activities: pot hole and square cut patching; overlaying existing asphalt or concrete pacing with asphalt or concrete without expanding the area of coverage; shoulder grading; reshaping or regrading drainage ditches; crack or chip sealing; resurfacing with in-kind material without expanding the road prism, and vegetative maintenance.

"Runoff" see "stormwater."

"Runoff Reduction Techniques" means the collective assortment of stormwater practices that reduce the volume of stormwater from discharging off site.

"Runway Protection Zone," as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008), means an area off the runway end to enhance the protection of people and property on the ground. See:
http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"Runway Safety Area," as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008), means a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. See:
http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR §122.41(m)(1)(ii).

"Sewershed" means, for the purposes of this permit, all the land area that is drained by a network of municipal storm sewer system conveyances to a single point of discharge to a water of the United States

"Significant contributor of pollutants" means any discharge that causes or could cause or contribute to an excursion above any Washington water quality standard.

"Small Municipal Separate Storm Sewer System" is defined at 40 CFR §122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to waters of the United States, but is not defined as "large"' or "medium" municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas such as individual buildings.

"Snow management" means the plowing, relocation and collection of snow and ice.

"Soil amendments" are components added *in situ* or native soils to increase the spacing between soil particles so that the soil can absorb and hold more moisture. The amendment of soils changes various other physical, chemical and biological characteristics so that the soils become more effective in maintaining water quality.

"Source control" means stormwater management practices that control stormwater *before* pollutants have been introduced into stormwater; a structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The 2012 *Stormwater Management Manual for Western Washington* separates source control BMPs into two types. *Structural Source Control BMPs* are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. *Operational BMPs* are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV-*Source Control BMPs* of the 2012 *Stormwater Management Manual for Western Washington* for details.

"Storm event" or "measurable storm event" for the purposes of this permit means a precipitation event that results in an actual discharge from the outfall and which follows the preceding measurable storm event by at least 48 hours (2 days).

"Storm water," "stormwater" and "stormwater runoff" as used in this permit means runoff during and following precipitation and snow melt events, including surface runoff and drainage, as defined at 40 CFR §122.26(b)(13). Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel or a constructed infiltration facility.

"Stormwater Control Measure" means physical, structural, and/or managerial measures that, when used singly or in combination, reduce the downstream quality and quantity impacts of stormwater. Also, SCM means a permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. This may include a schedule of activities, prohibition of practices, maintenance procedures, or other management practices. SCMs may include, but are not limited to, treatment requirements; operating procedures; practices to control plant site runoff, spillage, leaks, sludge, or waste disposal; or drainage from raw material storage. See "best management practices (BMPs)."

"Stormwater Discharge Associated with Construction Activity" as used in this permit, refers to a discharge of pollutants in stormwater runoff from areas where soil disturbing activities (*e.g.*, clearing, grading, or excavation), construction materials or equipment storage or maintenance (*e.g.*, fill piles, borrow areas, concrete truck washout, fueling) or other industrial stormwater directly related to the construction process are located. (See 40 CFR §122.26(b)(14)(x) and 40 CFR §122.26(b)(15) for the two regulatory definitions of stormwater associated with construction sites.)

"Stormwater Discharge Associated with Industrial Activity" as used in this permit, refers to the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial activity included in the regulatory definition at 40 CFR §122.26(b)(14).

"Stormwater Facility" means a constructed component of a stormwater drainage system, designed or constructed to perform a particular function or multiple functions. Stormwater facilities include, but are not limited to, pipes, swales, ditches, culverts, street gutters, detention basins, retention basins, constructed wetlands, infiltration devices, catch basins, oil/water separators, sediment basins, and modular pavement. See also "permananent stormwater management controls" and/or "post-construction stormwaer management controls."

"Stormwater Management Practice**"** or "Storm Water Management Control" means practices that manage stormwater, including structural and vegetative components of a stormwater system.

"Stormwater Management Program (SWMP)" refers to a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system.

"Stormwater Pollution Prevention Plan (SWPPP)" means a site specific plan designed to describe the control of soil or other materials to prevent pollutants in stormwater runoff, generally developed for a construction site, or an industrial facility. For the purposes of this permit, a SWPPP means a written document that identifies potential sources of pollution, describes practices to reduce

pollutants in stormwater discharges from the site, and identifies procedures that the operator will implement to comply with applicable permit requirements.

"Taxiway Safety Area," as defined in the *Aviation Stormwater Design Manual - Managing Wildlife Hazards Near Airports* (December 2008), means a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft unintentionally departing the taxiway. See: http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm

"TMDL" means Total Maximum Daily Load, an analysis of pollutant loading to a body of water detailing the sum of the individual waste load allocations for point sources and load allocations for non-point sources and natural background. See 40 CFR §130.2.

"Treatment" means storm water management practices that 'treat' storm water after pollutants have been incorporated into the stormwater.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 CFR §122.42(n)(1)

"Waters of the State" includes those waters as defined as "waters of the United States" in 40 CFR § 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in Chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington. See also "receiving waters."

"Waters of the United States" means:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

2. All interstate waters, including interstate "wetlands";

3. All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

   a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
   b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   c. Which are used or could be used for industrial purposes by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States under this definition;

5. Tributaries of waters identified in paragraphs 1 through 4 of this definition;

6. The territorial sea; and

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds for steam electric generation stations per 40 CFR Part 423) which also meet the criteria of this definition are not waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

"Watershed" is defined as all the land area that is drained by a water body and its tributaries.

"Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Appendix A – Street Waste Disposal (Part II.B.6.d)

Street Waste Solids

Soils generated from maintenance of the MS4 may be reclaimed, recycled or reused when allowed by local codes and ordinances. Soils that are identified as contaminated pursuant to Washington Administrative Code (WAC) Chapter 173-350 shall be disposed at a qualified solid waste disposal facility.

Street Waste Liquids

General Procedures:

Street waste collection should emphasize retention of solids in preference to liquids. Street waste solids are the principal objective in street waste collection and are substantially easier to store and treat than liquids.

Street waste liquids require treatment before their discharge. Street waste liquids usually contain high amounts of suspended and total solids and adsorbed metals. Treatment requirements depend on the discharge location.

Discharges to sanitary sewer and storm sewer systems must be approved by the entity responsible for operation and maintenance of the system. Neither Washington Department of Ecology nor EPA will generally require waste discharge permits for discharge of stormwater decant to sanitary sewers or to stormwater treatment BMPs that are constructed and maintained in accordance with Department of Ecology's 2012 *Stormwater Management Manual for Western Washington.*

For disposal of catch basin decant liquid and water removed from stormwater treatment facilities, EPA recommends the following, in order of preference:

1. **Discharge of catch basin decant liquids to a municipal sanitary sewer connected to a Public Owned Treatment Works (POTW) is the preferred disposal option.** Discharge to a municipal sanitary sewer requires the approval of the sewer authority. Approvals for discharge to a POTW will likely contain pretreatment, quantity and location conditions to protect the POTW.

2. **Discharge of catch basin decant liquids may be allowed into a Basic or Enhanced Stormwater Treatment BMP, if option 1 is not available.** Decant liquid collected from cleaning catch basins and stormwater treatment wet vaults may be discharged back into the storm sewer system under the following conditions:
   - The preferred disposal option of discharge to sanitary sewer is not reasonably available; and

- The discharge is to a Basic or Enhanced Stormwater Treatment Facility as described by Department of Ecology's 2012 *Stormwater Management Manual For Western Washington*. If pretreatment does not remove visible sheen from oils, the treatment facility must be able to prevent the discharge of oils causing a sheen; and

- The discharge is as near to the treatment facility as is practical, to minimize contamination or recontamination of the collection system; and

- The storm sewer system owner/operator has granted approval and has determined that the stormwater treatment facility will accommodate the increased loading. Pretreatment conditions to protect the stormwater treatment BMP may be issued as part of the approval process. Following local pretreatment conditions is a requirement of this permit.

- Flocculants for the pretreatment of catch basin decant liquids must be non-toxic under the circumstances of use and must be approved in advance by EPA Region 10.

The reasonable availability of sanitary sewer discharge will be determined by the Permittee, by evaluating such factors as distance, time of travel, load restrictions, and capacity of the stormwater treatment facility.

3. **Water removed from stormwater ponds, vaults and oversized catch basins may be returned to the storm sewer system.** Stormwater ponds, vaults and oversized catch basins contain substantial amounts of liquid, which hampers the collection of solids and pose problems if the removed waste must be hauled away from the site. Water removed from these facilities may be discharged back into the pond, vault or catch basin provided:

   - Clear water removed from a stormwater treatment structure may be discharged directly to a down gradient cell of a treatment pond or into the storm sewer system.

   - Turbid water may be discharged back into the structure it was removed from if

     - the removed water has been stored in a clean container (eductor truck, Baker tank or other appropriate container used specifically for handling stormwater or clean water); and

     - There will be no discharge from the treatment structure for at least 24 hours. If discharging to a pond, vault or catch basin that is not owned or operated by the Permittee,

   - The discharge must be approved by the storm sewer system owner/operator.

Appendix B - Runoff Treatment Requirements for New Development and Redevelopment Project Sites (Part II.B.5.g)

Project Thresholds

The following projects require the construction of stormwater treatment facilities:

- Projects in which the total area of pollution-generating hard surface (PGHS) is 5,000 square feet or more, or
- Projects in which the total area of pollution-generating pervious surfaces (PGPS) - not including permeable pavements - is three-quarters (3/4) of an acre or more; and from which there will be a surface discharge in a natural or man-made conveyance system from the site.

Treatment-Type Thresholds

1. Oil Control:

Treatment to achieve Oil Control applies to projects that have "high-use sites." High-use sites are those that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include:

a. An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area;

b. An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;

c. An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);

d. A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.

2. Phosphorus Treatment:

The requirement to provide phosphorous control is determined by the Department of Ecology (for example, through a waste load allocation as part of an EPA approved Total Maximum Daily Load [TMDL] analysis). There is currently no EPA approved TMDL for American Lake, although it is a water body reported under section 305(b) of the Clean Water Act, and is designated by the State of Washington as not supporting beneficial uses due to phosphorous. The Permittee should consider phosphorus treatment for any

discharges from new development or redevelopment projects that will discharge to American Lake.

3. Enhanced Treatment:

Except where specified under Appendix B4, *Basic Treatment*, enhanced treatment for reduction in dissolved metals is required for the following project sites that 1) discharge directly to freshwaters or conveyance systems tributary to freshwaters designated for aquatic life use or that have an existing aquatic life use; or 2) use infiltration strictly for flow control – not treatment- and the discharge is within ¼ mile of a freshwater designated for aquatic life use or that has an existing aquatic life use:

Industrial project sites,
Commercial project sites,
Multi-family project sites, and
High AADT roads as follows:

- Roads with an AADT of 15,000 or greater unless discharging to a 4th Strahler order stream or larger;

- Roads with an AADT of 30,000 or greater if discharging to a 4th Strahler order stream or larger (as determined using 1:24,000 scale maps to delineate stream order).

Any areas of the above-listed project sites that are identified as being subject to Basic Treatment requirements (below) are not also subject to Enhanced Treatment requirements. For developments with a mix of land use types, the Enhanced Treatment requirement shall apply when the runoff from the areas subject to the Enhanced Treatment requirement comprise 50% or more of the total runoff.

4. Basic Treatment:

Basic Treatment is required for each of the following circumstances:

- Project sites that discharge to the ground, UNLESS:

  1) The soil suitability criteria for infiltration treatment are met; (see Chapter 3 of Volume III-*Hydrologic Analysis and Flow Control BMPs* of the 2012 *Stormwater Management Manual for Western Washingto*n) and alternative pretreatment is provided (see Chapter 6, Volume V-*Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washingto*n) or

  2) The project site uses infiltration strictly for flow control – not treatment - and the discharge is within ¼-mile of a phosphorus sensitive lake (use a Phosphorus Treatment facility), or

3) The project site is industrial, commercial, multi-family residential, or a high AADT road (consistent with the Enhanced Treatment-type thresholds listed above) and is within ¼ mile of a fresh water designated for aquatic life use or that has an existing aquatic life use.(use an Enhanced Treatment facility).

- Residential projects not otherwise needing phosphorus control as designated by USEPA, the Department of Ecology, or by the Permittee;

- Project sites discharging directly (or indirectly through a MS4) to Basic Treatment Receiving Waters (Appendix I-C of the 2012 *Western Washington Stormwater Management Manual*)

- Project sites that drain to freshwater that is not designated for aquatic life use, and does not have an existing aquatic life use; and project sites that drain to waters not tributary to waters designated for aquatic use or that have an existing aquatic life use;

- Landscaped areas of industrial, commercial, and multi-family project sites, and parking lots of industrial and commercial project sites that do not involve pollution-generating sources (e.g., industrial activities, customer parking, storage of erodible or leachable material, wastes or chemicals) other than parking of employees' private vehicles. For developments with a mix of land use types, the Basic Treatment requirement shall apply when the runoff from the areas subject to the Basic Treatment requirement comprise 50% or more of the total runoff.

Treatment Facility Sizing

Size all stormwater treatment facilities for the entire area that drains to them, even if some of those areas are not pollution-generating.

Water Quality Design Storm Volume: The volume of runoff predicted from a 24-hour storm with a 6-month return frequency (a.k.a., 6-month, 24-hour storm). Wetpool facilities are sized based upon the volume of runoff predicted through use of the Natural Resource Conservation Service curve number equations in Chapter 2 of Volume III-*Hydrologic Analysis and Flow Control BMPs* of the 2012 *Stormwater Management Manual for Western Washington,* for the 6-month, 24-hour storm. Alternatively, when using an -approved continuous runoff model, the water quality design storm volume shall be equal to the simulated daily volume that represents the upper limit of the range of daily volumes that accounts for 91% of the entire runoff volume over a multi-decade period of record.

Water Quality Design Flow Rate

1. Preceding Detention Facilities or when Detention Facilities are not required:

   The flow rate at or below which 91% of the runoff volume, (as estimated by an approved continuous runoff model) will be treated. Design criteria for treatment facilities are assigned to achieve the applicable performance goal (e.g., 80% TSS removal) at the water quality design flow rate. At a minimum, 91% of the total runoff volume, as estimated by an approved continuous runoff model, must pass through the treatment facility(ies) at or below the approved hydraulic loading rate for the facility(ies).

2. Downstream of Detention Facilities:

   The water quality design flow rate must be the full 2-year release rate from the detention facility.

Treatment Facility Selection, Design, and Maintenance

Stormwater treatment facilities must be:

- Selected in accordance with the process identified in Chapter 4 of Volume I, and Chapter 2 of Volume V-*Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington* ,
- Designed in accordance with the design criteria in Volume V- *Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington*, and
- Maintained in accordance with the maintenance schedule in Volume V- *Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington.*

Additional Requirements

The discharge of untreated stormwater from pollution-generating hard surfaces to ground water must not be authorized by the Permittee, except for the discharge achieved by infiltration or dispersion of runoff through use of On-site Stormwater Management BMPs in accordance with Chapter 5, and Chapter 7, Volume V-*Runoff Treatment BMPs* of the 2012 *Stormwater Management Manual for Western Washington*; or by infiltration through soils meeting the soil suitability criteria in Chapter 3 of Volume III-*Hydrologic Analysis and Flow Control BMPs* of the 2012 *Stormwater Management Manual for Western Washington*.

Appendix C - Exemptions from the New Development and Redevelopment Requirements of Part II.B.5

Unless otherwise indicated in this Appendix the practices described in this Appendix are exempt from the New Development and Redevelopment Requirements of Part II.B.5, even if such practices meet the definition of new development or redevelopment site disturbance thresholds.

1. Forest practices:

Forest practices regulated under Title 222 WAC, except for Class IV General forest practices that are conversions from timber land to other uses, are exempt from the provisions of Part II.B.5.

2. Commercial agriculture:

Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture, and the construction of impervious surfaces are not exempt. *Commercial Agriculture* means those activities conducted on lands defined in Revised Code of Washington (RCW) 84.34.020(2) and activities involved in the production of crops or livestock for commercial trade. An activity ceases to be considered commercial agriculture when the area on which it is conducted is proposed for conversion to a nonagricultural use or has lain idle for more than five years, unless the idle land is registered in a federal or state soils conservation program, or unless the activity is maintenance of irrigation ditches, laterals, canals, or drainage ditches related to an existing and ongoing agricultural activity.

3. Oil and Gas Field Activities or Operations:

Construction of drilling sites, waste management pits, and access roads, as well as construction of transportation and treatment infrastructure such as pipelines natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations are exempt.

4. Pavement Maintenance:

The following pavement maintenance practices are exempt: pothole and square cut patching, overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping/regrading drainage systems, crack sealing, resurfacing with in-kind material without expanding the road prism, pavement preservation activities that do not expand the road prism, and vegetation maintenance.

The following pavement maintenance practices are not categorically exempt – they are considered redevelopment. The extent to which Part II.B.5 applies is explained for each circumstance.

- *Removing and replacing a paved surface to base course or lower, or repairing the pavement base:* If impervious areas are not expanded, the requirements of Part II.B.5.a through B.5.e apply.

- *Extending the pavement edge without increasing the size of the road prism, or paving graveled shoulders:* These are considered new impervious surfaces and are subject to the requirements of Part II.B.5.

- *Resurfacing by upgrading from dirt to gravel, asphalt, or concrete; upgrading from gravel to asphalt, or concrete; or upgrading from a bituminous surface treatment ("chip seal") to asphalt or concrete*: These are considered new impervious surfaces and are subject to the requirements of Part II.B.5.

5. Underground utility projects:

Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics are not subject to the requirements of Part II.B.5.

6. Exemptions from the Hydrologic Performance Requirement for Flow Control (Part II.B.5.f):

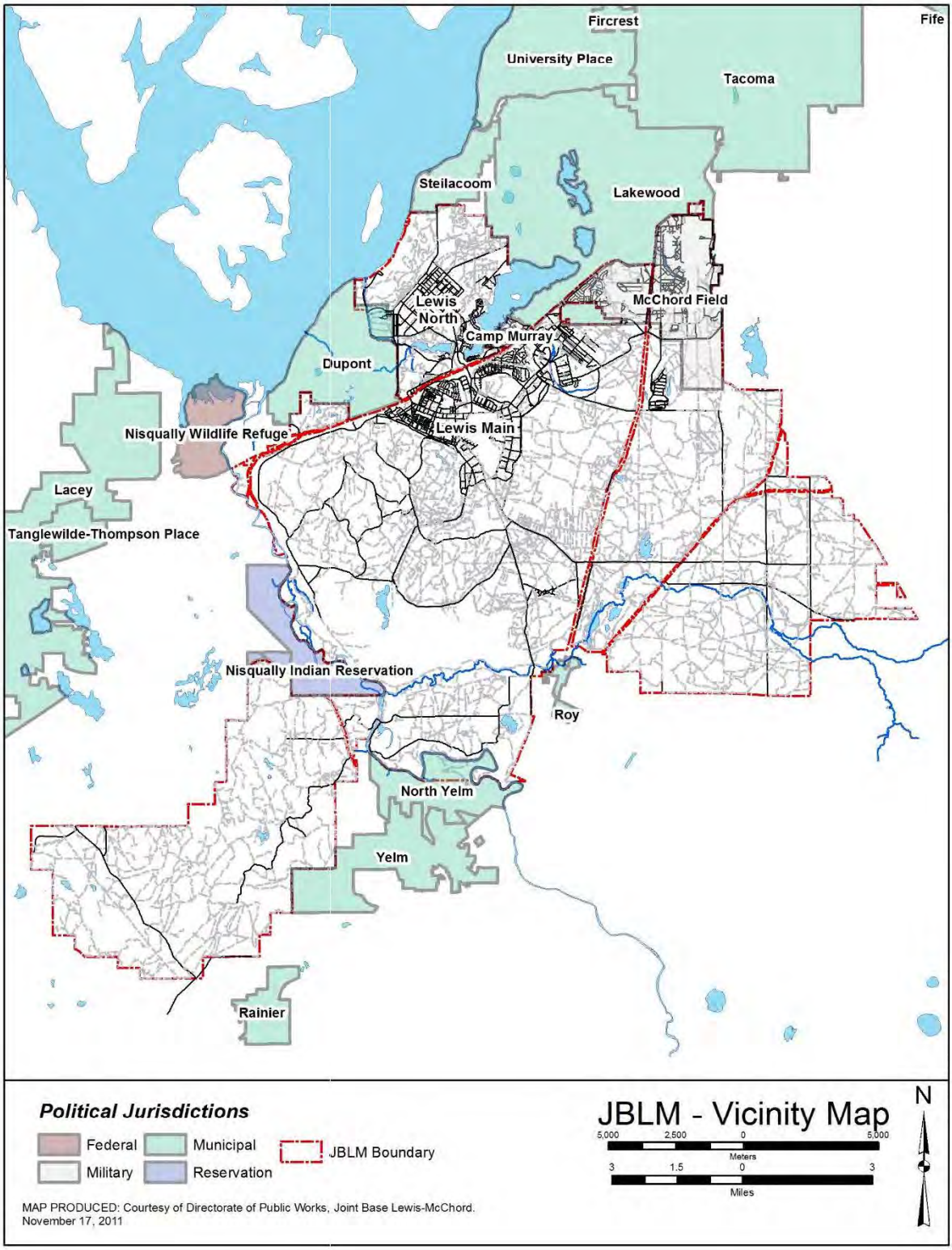
The Permittee may exempt a new development or redevelopment project from managing the total runoff flow volume calculated to meet the hydrologic performance standard in Part II.B.5.f, provided the Permittee fully documents its determination that compliance with the hydrologic performance requirement for flow control cannot be attained due to severe economic project costs.

The Permittee must manage as much of the calculated flow volume as possible, and must keep written records of all such project determinations.

No later than 15 days from the date the Permittee makes a determination that a project should be exempt from the hydrologic performance requirement for flow control due to severe economic costs, the Permittee must provide a written summary of the following information describing each new development and/or redevelopment project site exempted from the flow control requirement and submit such information to EPA via certified mail and via electronic mail to the EPA Region 10 address listed in Part IV.D of this permit:

- Name, location and identifying project description, including a brief synopsis of the project purpose, and a detailed description of the underlying facts supporting the Permittee's determination.
- For projects where managing the total runoff flow volume calculated to meet the hydrologic performance requirement for flow control in Part II.B.5. f. is deemed by the Permittee to be unattainable due to severe economic costs, the Permittee must document, and quantify that appropriate stormwater control strategies will be deployed to manage as much of the calculated flow volume as possible; the marginal cost of full attainment must be documented along with a justification on why full attainment of the flow control requirement at the site would result in severe economic cost.

Appendix D - Vicinity Map of JBLM Installation



ATTACHMENT 10

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

Authorization to Discharge Under the
National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

Ada County Highway District,
Boise State University,
City of Boise,
City of Garden City.
Drainage District #3,
and the Idaho Transportation Department District #3,

(hereinafter "the Permittees")

are authorized to discharge from all municipal separate storm sewer system (MS4) outfalls existing as of the effective date of this Permit to waters of the United States, including the Boise River and its tributaries, in accordance with the conditions set forth herein.

This Permit will become effective February 1, 2013.

This Permit, and the authorization to discharge, expires at midnight, January 30, 2018.

Permittees must reapply for permit reissuance on or before August 3, 2017, 180 days before the expiration of this Permit, if the Permittees intend to continue operations and discharges from the MS4s beyond the term of this Permit.

Signed this 12th day of December, 2012.

Daniel D. Opalski, Director
Office of Water and Watersheds, Region 10
U.S. Environmental Protection Agency

Table of Contents

I. Applicability

A. Permit Area. This Permit covers all areas within the corporate boundary of the City of Boise and Garden City, Idaho, which are served by the municipal separate storm sewer systems (MS4s) owned or operated by the Ada County Highway District, Boise State University, City of Boise, City of Garden City, Drainage District #3, and/or the Idaho Transportation Department District #3 (the Permittees).

B. Discharges Authorized Under This Permit. Subject to the conditions set forth herein, the Permittees are authorized to discharge storm water to waters of the United States from the MS4s identified in Part I.A.

As provided in Part I.D, this Permit also authorizes the discharge of flows from the MS4s which are categorized as allowable non-storm water discharge, storm water discharge associated with industrial activity, and storm water discharge associated with construction activity.

C. Permittees' Responsibilities

1. **Individual Responsibility**. Each Permittee is individually responsible for Permit compliance related only to portions of the MS4 owned or operated solely by that Permittee, or where this Permit requires a specific Permittee to take an action.
2. **Joint Responsibility.** Each Permittee is jointly responsible for Permit compliance:
   a) related to portions of the MS4 where operational or storm water management program (SWMP) implementation authority has been transferred to all of the Permittees in accordance with an intergovernmental agreement or agreement between the Permittees;
   b) related to portions of the MS4 where Permittees jointly own or operate a portion of the MS4;
   c) related to the submission of reports or other documents required by Parts II and IV of this Permit; and
   d) Where this Permit requires the Permittees to take an action and a specific Permittee is not named.
3. **Intergovernmental Agreement.** The Permittees must maintain an intergovernmental agreement describing each organization's respective roles and responsibilities related to this Permit. Any previously signed agreement may be updated, as necessary, to comply with this requirement. An updated intergovernmental agreement must be completed no later than July 1, 2013. A copy of the updated intergovernmental agreement must be submitted to the Environmental Protection Agency (EPA) with the 1st Year Annual Report.

D. Limitations on Permit Coverage

1. **Non-Storm Water Discharges**. Permittees are not authorized to discharge non-storm water from the MS4, except where such discharges satisfy one of the following three conditions:

   a) The non-storm water discharges are in compliance with a separate NPDES permit;

   b) The non-storm water discharges result from a spill and:

      (i) are the result of an unusual and severe weather event where reasonable and prudent measures have been taken to prevent and minimize the impact of such discharge; or

      (ii) consist of emergency discharges required to prevent imminent threat to human health or severe property damage, provided that reasonable and prudent measures have been taken to prevent and minimize the impact of such discharges;

   or

   c) The non-storm water discharges satisfy each of the following two conditions:

      (i) The discharges consist of uncontaminated water line flushing; potable water sources; landscape irrigation (provided all pesticides, herbicides and fertilizer have been applied in accordance with manufacturer's instructions); lawn watering; irrigation water; flows from riparian habitats and wetlands; diverted stream flows; springs; rising ground waters; uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20)) to separate storm sewers; uncontaminated pumped ground water or spring water; foundation and footing drains (where flows are not contaminated with process materials such as solvents); uncontaminated air conditioning or compressor condensate; water from crawlspace pumps; individual residential car washing; dechlorinated swimming pool discharges; routine external building wash down which does not use detergents; street and pavement wash waters, where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed); fire hydrant flushing; or flows from emergency firefighting activities; and

      (ii) The discharges are not sources of pollution to waters of the United States. A discharge is considered a source of pollution to waters of the United States if it:

         1) Contains hazardous materials in concentrations found to be of public health significance or to impair beneficial uses in receiving waters. (Hazardous materials are those

that are harmful to humans and animals from exposure, but not necessarily ingestion);

2) Contains toxic substances in concentrations that impair designated beneficial uses in receiving waters. (Toxic substances are those that can cause disease, malignancy, genetic mutation, death, or similar consequences);

3) Contains deleterious materials in concentrations that impair designated beneficial uses in receiving waters. (Deleterious materials are generally substances that taint edible species of fish, cause taste in drinking waters, or cause harm to fish or other aquatic life);

4) Contains radioactive materials or radioactivity at levels exceeding the values listed in 10 CFR Part 20 in receiving waters;

5) Contains floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or in concentrations that may impair designated beneficial uses in receiving waters;

6) Contains excessive nutrients that can cause visible slime growths or other nuisance aquatic growths that impair designated beneficial uses in receiving waters;

7) Contains oxygen-demanding materials in concentrations that would result in anaerobic water conditions in receiving waters; or

8) Contains sediment above quantities specified in IDAPA 58.01.02.250.02.e or in the absence of specific sediment criteria, above quantities that impair beneficial uses in receiving waters; or

9) Contains material in concentrations that exceed applicable natural background conditions in receiving waters (IDAPA 58.01.02.200. 09). Temperature levels may be increased above natural background conditions when allowed under IDAPA 58.01.02.401.

2. **Discharges Threatening Water Quality.** Permittees are not authorized to discharge storm water that will cause, or have the reasonable potential to cause or contribute to, an excursion above the Idaho water quality standards.

3. **Snow Disposal to Receiving Waters**. Permittees are not authorized to push or dispose of snow plowed within the Permit area directly into waters of the United States, or directly into the MS4(s). Discharges from any Permittee's snow disposal and snow management practices are authorized under this Permit only when such sites and practices are designed, conducted, operated, and maintained to prevent and reduce pollutants in the discharges to the maximum

extent practicable so as to avoid excursions above the Idaho water quality standards.

4. **Storm Water Discharge Associated with Industrial and Construction Activity.** Permittees are authorized to discharge storm water associated with industrial activity (as defined in 40 CFR 122.26(b)(14)), and storm water associated with construction activity (as defined in 40 CFR 122.26(b)(14)(x) and (b)(15)), from their MS4s, only when such discharges are otherwise authorized under an appropriate NPDES permit.

II. Storm Water Management Program (SWMP) Requirements

A. General Requirements

1. **Reduce pollutants to the maximum extent practicable.** The Permittees must implement and enforce a SWMP designed to reduce the discharge of pollutants from their MS4 to the maximum extent practicable (MEP), and to protect water quality in receiving waters. The SWMP as defined in this Permit must include best management practices (BMPs), controls, system design, engineering methods, and other provisions appropriate to control and minimize the discharge of pollutants from the MS4s.

   a) **SWMP Elements**. The required SWMP control measures are outlined in Part II.SWMP assessment/monitoring requirements are described in Part IV. Each Permittee must use practices that are selected, implemented, maintained, and updated to ensure that storm water discharges do not cause or contribute to an exceedance of an applicable Idaho water quality standard.

   b) **SWMP Documentation.** Each Permittee must prepare written documentation of the SWMP as implemented within their jurisdiction. The SWMP documentation must be organized according to the program components in Parts II and IV of this Permit, and must provide a current narrative physical description of the Permittee's MS4, illustrative maps or graphics, and all related ordinances, policies and activities as implemented within their jurisdiction. Each Permittee's SWMP documentation must be submitted to EPA with the 1st Year Annual Report.

      (i) Each Permittee must provide an opportunity for public review and comment on their SWMP documentation, consistent with applicable state or local requirements and Part II.B.6 of this Permit.

      (ii) Each Permittee's SWMP documentation must be updated at least annually and submitted as part of each subsequent Annual Report. (The document format used for Annual Report(s) submitted to EPA by the Permittees' prior to the effective date of this Permit may be modified to meet this requirement.)

   c) **SWMP Information.** The SWMP must include an ongoing program for gathering, tracking, maintaining, and using information to set priorities, evaluate SWMP implementation and Permit compliance.

d) **SWMP Statistics**. Permittees must track the number of inspections, official enforcement actions and types of public education activities and outcomes as stipulated by the respective program component. This information must be included in the Annual Report.

2. **Shared Implementation with outside entities.** Implementation of one or more of the SWMP minimum control measures may be shared with or delegated to another entity other than the Permittee(s). A Permittee may rely on another entity only if:

   a) The other entity, in fact, implements the minimum control measure;

   b) The action, or component thereof , is at least as stringent as the corresponding Permit requirement; and

   c) The other entity agrees to implement the minimum control measure on the Permittee's behalf. A binding written acceptance of this obligation is required. Each Permittee must maintain and record this obligation as part of the SWMP documentation. If the other entity agrees to report on the minimum control measure, the Permittees must supply the other entity with the reporting requirements in Part IV.C of this Permit. The Permittees remain responsible for compliance with the Permit obligation if the other entity fails to implement the required minimum control measure.

3. **Modification of the SWMP**. Minor modifications to the SWMP may be made in accordance with Part II.E of this Permit.

4. **Subwatershed Planning.** No later than September 30, 2016, the Permittees must jointly complete at least two individual sub-watershed plans for areas served by the MS4s within the Permit area. For the purposes of this Permit, the terms "subwatershed" and "storm sewershed" are defined as in Part VII. For each plan document, the subwatershed planning area must drain to at least one of the water bodies listed in Table II.C.

   Selected subwatersheds must be identified in the 1st Year Annual Report. Two completed subwatershed plan documents must be submitted to EPA as part of the 4th Year Annual Report.

   a) The Permittees must actively engage stakeholders in the development of each plan, and must provide opportunities for public input, consistent with Part II.B.6.

   b) The Permittees may modify and update any existing watershed planning document(s) to address the requirements of this Part.

   c) Each subwatershed plan must describe the extent and nature of the existing storm sewershed, and identify priority aquatic resources and beneficial uses to be protected or restored within the subwatershed planning area. Each subwatershed plan must contain a prioritized list of potential locations or opportunities for protecting or restoring such resources or beneficial uses through storm water infiltration, evapotranspiration or rainfall

harvesting/reuse, or other site-based low impact development (LID) practices. See Parts II.B.2.a, and II.B.2.c.

d) Each subwatershed plan must include consideration and discussion of how the Permittees will provide incentives, or enforce requirements, through their respective Stormwater Management Programs to address the following principles:

(i) Minimize the amount of impervious surfaces (roads, parking lots, roofs) within each watershed, by minimizing the creation, extension and widening of roads and associated development.

(ii) Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.

(iii) Prevent or reduce thermal impacts to water bodies, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.

(iv) Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges.

(v) Preserve and protect trees, and other vegetation with important evapotranspirative qualities.

(vi) Preserve and protect native soils, prevent topsoil stripping, and prevent compaction of soils.

B. Minimum Control Measures. The following minimum control measures must be accomplished through each Permittee's Storm Water Management Program:

1. **Construction Site Runoff Control Program.** The Permittees must implement a construction site runoff control program to reduce discharges of pollutants from public and private construction activity within its jurisdiction.

The Permittees' construction site management program must include the requirements described below:

a) **Ordinance and/or other regulatory mechanism**. To the extent allowable under local or state law, Permittees must adopt, implement, and enforce requirements for erosion controls, sediment controls, and materials management techniques to be employed and maintained at each construction project from initial clearing through final stabilization. Each Permittee must require construction site operators to maintain adequate and effective controls to reduce pollutants in storm water discharges from construction sites. The Permittees must use enforcement actions (such as, written warnings, stop work orders or fines) to ensure compliance.

No later than September 30, 2015, each Permittee must update their ordinances or other regulatory mechanisms, as necessary, to be consistent with this Permit and with the current version of the *NPDES General Permit for Storm Water Discharges from Construction Activities*, Permit #IDR12-0000 (NPDES Construction General Permit or CGP).

b) **Manuals Describing Construction Storm Water Management Controls and Specifications.** The Permittees must require construction site operators within their jurisdiction to use construction site management controls and specifications as defined within manuals adopted by the Permittees.

No later than September 30, 2015, the Permittees must update their respective manuals, as necessary, to include requirements for the proper installation and maintenance of erosion controls, sediment controls, and material containment/pollution prevention controls during all phases of construction activity. The manual(s) must include all acceptable control practices, selection and sizing criteria, illustrations, and design examples, as well as recommended operation and maintenance of each practice. At a minimum, the manual(s) must include requirements for erosion control, sediment control, and pollution prevention which complement and do not conflict with the current version of the CGP. If the manuals previously adopted by the individual Permittee do not meet these requirements, the Permittee may create supplemental provisions to include as part of the adopted manual in order to comply with this Permit.

c) **Plan Review and Approval.** The Permittees must review and approve preconstruction site plans from construction site operators within their jurisdictions. Permittees must ensure that the construction site operator is prohibited from commencing construction activity prior to receipt of written approval.

(i) The Permittees must not approve any erosion and sediment control (ESC) plan or Storm Water Pollution Prevention Plan (SWPPP) unless it contains appropriate site-specific construction site control measures meeting the Permittee's requirements as outlined in Part II.B.1.b.

(ii) Prior to the start of a construction project disturbing one or more acres, or disturbing less than one acre but is part of a larger common plan of development, the Permittees must advise the construction site operator(s) to seek or obtain necessary coverage under the NPDES Construction General Permit.

(iii) Permittees must use qualified individuals, knowledgeable in the technical review of ESC plans/SWPPPs, to conduct such reviews.

(iv) Permittees must document the review of each ESC plan and/or SWPPP using a checklist or similar process.

d) **Construction Site Inspections**. The Permittees must inspect construction sites occurring within their jurisdictions to ensure compliance with their

applicable requirements. The Permittees may establish an inspection prioritization system to identify the frequency and type of inspection based upon such factors as project type, total area of disturbance, location, and potential threat to water quality. If a prioritization system is used, the Permittee must include a description of the current inspection prioritization in the SWMP document required in Part II.A, and summarize the nature and number of inspections conducted during the previous reporting period in each Annual Report.

(i) Inspections of construction sites must include, but not be limited to:

- As applicable, a check for coverage under the Construction General Permit by reviewing any authorization letter or Notice of Intent (NOI) during initial inspections;
- Review the applicable ESC plan/SWPPP to determine if control measures have been installed, implemented, and maintained as approved;
- Assessment of compliance with the Permittees' ordinances/requirements related to storm water runoff, including the implementation and maintenance of required control measures;
- Assessment of the appropriateness of planned control measures and their effectiveness;
- Visual observation of non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
- Education or instruction related to on storm water pollution prevention practices, as needed or appropriate; and
- A written or electronic inspection report.

(ii) The Permittees must track the number of construction site inspections conducted throughout the reporting period, and verify that the sites are inspected at the minimum frequencies required by the inspection prioritization system. Construction site inspections must be tracked and reported with each Annual Report.

(iii) Based on site inspection findings, each Permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance. Follow-up and enforcement actions must be tracked and reported with each Annual Report.

e) **Enforcement Response Policy for Construction Site Management Program**. No later than September 30, 2016, each Permittee must develop and implement a written escalating enforcement response policy (ERP) appropriate to their organization. Upon implementation of the policy in its jurisdiction, each Permittee must submit its completed ERP to EPA with the 4th Year Annual Report. The ERP for City of Boise, City of Garden City, and Ada County Highway District must address enforcement of construction site runoff controls for all currently regulated construction projects within their jurisdictions. The ERP for Idaho Transportation Department District 3, Drainage District 3, and Boise State University must address contractual enforcement of construction site runoff controls at construction sites within their jurisdictions. Each ERP must describe the Permittee's potential responses to violations with an appropriate educational or enforcement response. The ERP must address repeat violations through progressively stricter responses as needed to achieve compliance. Each ERP must describe how the Permittee will use the following types of enforcement response, as available, based on the type of violation:

(i) Verbal Warnings: Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of violation and required corrective action.

(ii) Written Notices: Written notices must stipulate the nature of the violation and the required corrective action, with deadlines for taking such action.

(iii) Escalated Enforcement Measures: The Permittees must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent):

- The ERP must indicate when the Permittees will initiate a Stop Work Order. Stop work orders must require that construction activities be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
- The Permittees must also use other escalating measures provided under local or state legal authorities, such as assessing monetary penalties. The Permittees may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project's bond, or directly billing the responsible party to pay for work and materials.

f) **Construction General Permit Violation Referrals.** For those construction projects which are subject to the NPDES Construction General Permit and do not respond to Permittee educational efforts, the Permittee may provide to EPA information regarding construction project operators which cannot demonstrate that they have appropriate NPDES Permit

coverage and/or site operators deemed by the Permittee as not complying with the NPDES Construction General Permit. Permittees may submit such information to the EPA NPDES Compliance Hotline in Seattle, Washington, by telephone, at (206) 553-1846, and include, at a minimum, the following information:

- Construction project location and description;
- Name and contact information of project owner/ operator;
- Estimated construction project disturbance size; and
- An account of information provided by the Permittee to the project owner/ operator regarding NPDES filing requirements.

(i) **Enforcement Tracking.** Permittees must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:

- Name of owner/operator;
- Location of construction project;
- Description of violation;
- Required schedule for returning to compliance;
- Description of enforcement response used, including escalated responses if repeat violations occur;
- Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations, etc.); and
- Any referrals to different departments or agencies.

g) **Construction Program Education and Training.** Throughout the Permit term, the Permittees must ensure that all staff whose primary job duties are related to implementing the construction program (including permitting, plan review, construction site inspections, and enforcement) are trained to conduct such activities. The education program must also provide regular training opportunities for construction site operators. This training must include, at a minimum:

(i) *Erosion and Sediment Control/Storm Water Inspectors*:

- Initial training regarding proper control measure selection, installation and maintenance as well as administrative requirements such as inspection reporting/tracking and the implementation of the enforcement response policy; and

- Annual refresher training for existing inspection staff to update them on preferred BMPs, regulation changes, Permit updates, and policy or standards updates.

(ii) *Other Construction Inspectors*: Initial training on general storm water issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance.

(iii) *Plan Reviewers*:

- Initial training regarding control measure selection, design standards, review procedures;

- Annual training regarding new control measures, innovative approaches, Permit updates, regulation changes and policy or standard updates.

(iv) *Third-Party Inspectors and Plan Reviewers*. If the Permittee utilizes outside parties to either conduct inspections and or review plans, these outside staff must be trained per the requirements listed in Part II.B.1.f.i.-iii above.

(v) *Construction Operator Education*. At a minimum, the Permittees must educate construction site operators within the Permit area as follows:

- At least once per year, the Permittees must either provide information to all construction companies on existing training opportunities or develop new training for construction operators regarding appropriate selection, installation, and use of required construction site control measures at sites within the Permit area.

- The Permittees must require construction site operators to have at least one person on-site during construction that is appropriately trained in erosion and sediment control.

- The Permittees must require construction operators to attend training at least once every three years.

- The Permittees must provide appropriate information and outreach materials to all construction operators who may disturb land within their jurisdiction.

2. Storm Water Management for Areas of New Development and Redevelopment. At a minimum, the Permittees must implement and enforce a program to control storm water runoff from new development and redevelopment projects that result in land disturbance of 5,000 square feet or more, excluding individual one or two family dwelling development or redevelopment. This program must apply to private and public sector development, including roads and streets. The program implemented by the Permittees must ensure that permanent controls or practices are utilized at each new development and redevelopment site to protect water quality. The program must include, at a minimum, the elements described below:

a) **Ordinance or other regulatory mechanisms**. No later than the expiration date of this Permit, each Permittee must update its applicable ordinance or regulatory mechanism which requires the installation and long-term maintenance of permanent storm water management controls at new development and redevelopment projects. Each Permittee must update their ordinance/regulatory mechanism to the extent allowed by local and state law, consistent with the individual Permittee's respective legal authority. Permittees must submit their revised ordinance/regulatory mechanism as part of the 5th Year Annual Report.

(i) The ordinance/regulatory mechanism must include site design standards for all new and redevelopment that require, in combination or alone, storm water management measures that keep and manage onsite the runoff generated from the first 0.6 inches of rainfall from a 24-hour event preceded by 48 hours of no measureable precipitation. Runoff volume reduction can be achieved by canopy interception, soil amendments, bioretention, evapotranspiration, rainfall harvesting, engineered infiltration, extended filtration, and/or any combination of such practices that will capture the first 0.6 inches of rainfall. An Underground Injection Control permit may be required when certain conditions are met. The ordinance or regulatory mechanism must require that the first 0.6 inches of rainfall be 100% managed with no discharge to surface waters, except when the Permittee chooses to implement the conditions of II.B.2.a.ii below.

(ii) For projects that cannot meet 100% infiltration/evapotranspiration/reuse requirements onsite, the Permittees' program may allow offsite mitigation within the same subwatershed, subject to siting restrictions established by the Permittee. The Permittee allowing this option must develop and apply criteria for determining the circumstances under which offsite mitigation may be allowed. A determination that the onsite retention requirement cannot be met must be based on multiple factors, including but not limited to technical feasibility or logistic practicality (e.g. lack of available space, high groundwater, groundwater contamination, poorly infiltrating soils, shallow bedrock, and/or a land use that is inconsistent with

capture and reuse or infiltration of storm water). Determinations may not be based solely on the difficulty and/or cost of implementing such measures. The Permittee(s) allowing this option must create an inventory of appropriate mitigation projects and develop appropriate institutional standards and management systems to value, estimate and track these situations. Using completed subwatershed plans or other mechanisms, the Permittee(s) must identify priority areas within subwatersheds in which off-site mitigation may be conducted.

(iii) The ordinance or regulatory mechanism must include the following water quality requirements:

- Projects with potential for excessive pollutant loading(s) must provide water quality treatment for associated pollutants before infiltration.
- Projects with potential for excessive pollutant loading(s) that cannot implement adequate preventive or water quality treatment measures to ensure compliance with Idaho surface water standards must properly convey storm water to a NPDES permitted wastewater treatment facility or via a licensed waste hauler to a permitted treatment and disposal facility.

(iv) The ordinance or other regulatory mechanism must include procedures for the Permittee's review and approval of permanent storm water management plans for new development and redevelopment projects consistent with Part II.B.1.d.

(v) The ordinance or other regulatory mechanism must include sanctions (including fines) to ensure compliance, as allowed under state or local law.

b) **Storm Water Design Criteria Manual.** No later than September 30, 2015, each Permittee must update as necessary their existing Storm Water Design Criteria Manual specifying acceptable permanent storm water management and control practices. The manual must contain design criteria for each practice. In lieu of updating a manual, a Permittee may adopt a manual created by another entity which complies with this section. The manual must include:

(i) Specifications and incentives for the use of site-based practices appropriate to local soils and hydrologic conditions;

(ii) A list of acceptable practices, including sizing criteria, performance criteria, design examples, and guidance on selection and location of practices; and

(iii) Specifications for proper long term operation and maintenance, including appropriate inspection interval and self-inspection checklists for responsible parties.

c) **Green Infrastructure/Low Impact Development (LID) Incentive Strategy and Pilot Projects**. No later than September 30, 2015, the Permittees must develop a strategy to provide incentives for the increased use of LID techniques in private and public sector development projects within each Permittee's jurisdiction. Permittees must comply with applicable State and local public notice requirements when developing this Strategy. Pursuant to Part IV.A.2.a, the Strategy must reference methods of evaluating at least three (3) Green Infrastructure/LID pilot projects as described below. Permittees must implement the Green Infrastructure/LID Incentive Strategy, and complete an effectiveness evaluation of at least three pilot projects, prior to the expiration date of this Permit.

(i) As part of the 3rd Year Annual Report, the Permittees must submit the written Green Infrastructure /LID Incentive Strategy; the Strategy must include a description of at least three selected pilot projects, and a narrative report on the progress to evaluate the effectiveness of each selected LID technique or practice included in the pilot project. Each pilot project must include an evaluation of the effectiveness of LID technique(s) or practice(s) used for on-site control of water quality and/or quantity. Each Pilot Project must involve at least one or more of the following characteristics:

- The project manages runoff from at least 3,000 square feet of impervious surface;
- The project involves transportation related location(s) (including parking lots);
- The drainage area of the project is greater than five acres in size; and/or
- The project involves mitigation of existing storm water discharges to one or more of the water bodies listed in Table II.C.

(ii) Consistent with Part IV.A.10, the Permittees must evaluate the performance of LID technique(s) or practice(s) in each pilot project, and include a progress report on overall strategy implementation in the 4th Annual Report. Final pilot project evaluations must be submitted in the 5th Year Annual Report. The Permittees must monitor, calculate or model changes in runoff quantities for each of the pilot project sites in the following manner:

- For retrofit projects, changes in runoff quantities shall be calculated as a percentage of 100% pervious surface before and after implementation of the LID technique(s) or practice(s).
- For new construction projects, changes in runoff quantities shall be calculated for development scenarios both with LID technique(s) or practice(s) and without LID technique(s) or practice(s).

- The Permittees must measure runoff flow rate and subsequently prepare runoff hydrographs to characterize peak runoff rates and volumes, discharge rates and volumes, and duration of discharge volumes. The evaluation must include quantification and description of each type of land cover contributing to surface runoff for each pilot project, including area, slope, vegetation type and condition for pervious surfaces, and the nature of impervious surfaces.
- The Permittees must use these runoff values to evaluate the overall effectiveness of various LID technique(s) or practice(s) and to develop recommendations for future adoption of LID technique(s) or practice(s) that address appropriate use, design, type, size, soil type and operation and maintenance practices.

(iii) **Riparian Zone Management and Outfall Disconnection.** No later than September 30, 2015, the Permittees must identify and prioritize riparian areas appropriate for Permittee acquisition and protection. Prior to the expiration date of this Permit, the Permittees must undertake and complete at least one project designed to reduce the flow of untreated urban storm water discharging through the MS4 system through the use of vegetated swales, storm water treatment wetlands and/or other appropriate techniques. The Permittees must submit the list of prioritized riparian protection areas, and a status report on the planning and implementation of the outfall disconnection project, as part of the 3rd Year Annual Report. Documentation of the completed outfall disconnection project must be included in the 5th Year Annual Report.

(iv) **Repair of Public Streets, Roads and Parking Lots.** When public streets, roads or parking lots are repaired (as defined in Part VII), the Permittees performing these repairs must evaluate the feasibility of incorporating runoff reduction techniques into the repair by using canopy interception, bioretention, soil amendments, evaporation, rainfall harvesting, engineered infiltration, rain gardens, infiltration trenches, extended filtration and/or evapotranspiration and/or any combination of the aforementioned practices. Where such practices are found to be technically feasible, the Permittee performing the repair must use such practices in the design and repair. These requirements apply only to projects whose design process is started after the effective date of this Permit. As part of the 5th Year Annual Report, the Permittees must list the locations of street, road and parking lot repair work completed since the effective date of the Permit that have incorporated such runoff reduction practices, and the receiving water body(s) benefitting from such practices. This documentation must include a general description of the project design, estimated total cost, and estimates of total flow

volume and pollutant reduction achieved compared to traditional design practices.

d) **Plan Review and Approval.** The Permittees must review and approve pre-construction plans for permanent storm water management. The Permittees must review plans for consistency with the ordinance/regulatory mechanism and Storm Water Design Criteria Manual required by this Part. The Permittees must ensure that the project operator is prohibited from commencing construction activity prior to receipt of written approval from the Permittee.

(i) The Permittees must not approve or recommend for approval any plans for permanent storm water controls that do not contain appropriate permanent storm water management practices that meet the minimum requirements specified in this Part.

(ii) Permittees must use qualified individuals, knowledgeable in the technical review of plans for permanent storm water controls to conduct such reviews.

(iii) Permittees must document the review of each plan using a checklist or similar process.

e) **Operation and Maintenance (O&M) of Permanent Storm Water Management Controls.**

(i) **Inventory and Tracking.** The Permittees must maintain a database tracking all new public and private sector permanent storm water controls. No later than January 30, 2018, all of the available data on existing permanent storm water controls known to the Permittees must be included in the inventory database. For the purposes of this Part, new permanent controls are those installed after February 1, 2013; existing permanent controls are those installed prior to February 1, 2013. The tracking must begin in the plan review stage with a database that incorporates geographic information system (GIS) information. The tracking system must also include, at a minimum: type and number of practices; O&M requirements, activity and schedule; responsible party; and self-inspection schedule.

(ii) **O&M Agreements.** Where parties other than the Permittees are responsible for operation and maintenance of permanent storm water controls, the Permittees must require a legally enforceable and transferable O&M agreement with the responsible party, or other mechanism, that assigns permanent responsibility for maintenance of structural or treatment control storm water management practices.

f) **Inspection and Enforcement of Permanent Storm Water Management Controls.** The Permittees must ensure proper long term operation and

maintenance of all permanent storm water management practices within the Permittees' respective jurisdiction. The Permittees must implement an inspection program, and define and prioritize new development and redevelopment sites for inspections of permanent storm water management controls. Factors used to prioritize sites must include, but not be limited to: size of new development or redevelopment area; sensitivity and/or impaired status of receiving water(s); and, history of non-compliance at the site during the construction phase.

(i) No later than September 30, 2017, all high priority locations must be inventoried and associated inspections must be scheduled to occur at least once annually. The inspections must determine whether storm water management or treatment practices have been properly installed (i.e., an "as built" verification). The inspections must evaluate the operation and maintenance of such practices, identify deficiencies and potential solutions, and assess potential impacts to receiving waters.

(ii) No later than September 30, 2017, the Permittees must develop checklists to be used by inspectors during these inspections, and must maintain records of all inspections conducted on new development and redevelopment sites.

(iii) No later than September 30, 2017, the Permittees must develop and implement an enforcement strategy similar to that required in Section II.B.1.e to maintain the integrity of permanent storm water management and treatment practices.

g) **Education and Training on Permanent Storm Water Controls**. No later than September 30, 2015, the Permittees must begin a training program for appropriate audiences regarding the selection, design, installation, operation and maintenance of permanent storm water controls. The training program and materials must be updated as necessary to include information on updated or revised storm water treatment standards, design manual specifications, Low Impact Development techniques or practices, and proper operation and maintenance requirements.

(i) No later than September 30, 2016, and annually thereafter, all persons responsible for reviewing plans for new development and redevelopment and/or inspecting storm water management practices and treatment controls must receive training sufficient to determine the adequacy of storm water management and treatment controls at proposed new development and redevelopment sites.

(ii) No later than September 30, 2016, and at least annually thereafter, Permittees must provide training to local audiences on the storm water management requirements described in this Part.

3. Industrial and Commercial Storm Water Discharge Management. The Permittees must implement a program to reduce to the MEP the discharge of pollutants from industrial and commercial operations within their jurisdiction. Throughout the Permit term, the Permittees must conduct educational and/or enforcement efforts to reduce the discharge of pollutants from those industrial and commercial locations which are considered to be significant contributors of phosphorus, bacteria, temperature, and/or sediment to receiving waters. At a minimum, the program must include the following elements:

a) **Inventory of Industrial and Commercial Facilities/Activities**. No later than September 30, 2016, the Permittees must update the inventory and map of facilities and activities discharging directly to their MS4s.

(i) At a minimum, the inventory must include information listing the watershed/receiving water body, facility name, address, nature of business or activity, and North American or Standard Industrial Classification code(s) that best reflect the facility's product or service;

(ii) The inventory must include the following types of facilities: municipal landfills (open and closed); Permittee-owned maintenance yards and facilities; hazardous waste recovery, treatment, storage and disposal facilities; facilities subject to Section 313 of the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11023; all industrial sectors listed in 40 CFR §122.26(b)(14); vehicle or equipment wash systems; commercial animal facilities, including kennels, race tracks, show facilities, stables, or other similar commercial locations where improper management of domestic animal waste may contribute pollutants to receiving waters or to the MS4; urban agricultural activities; and other industrial or commercial facility that the Permittees determine is contributing a substantial pollutant loading to the MS4 and associated receiving waters.

(iii) The Permittees must collectively identify at least two specific industrial/commercial activities or sectors operating within the Permit area for which storm water discharges are not being adequately addressed through existing programs. No later than September 30, 2016, the Permittees must develop best management practices for each activity, and educate the selected industrial/commercial audiences regarding these performance expectations. Example activities for consideration include, but are not limited to: landscaping businesses; wholesale or retail agricultural and construction supply businesses; urban agricultural activities; power washers; commercial animal facilities; commercial car/truck washing operations; and automobile repair shops.

b) **Inspection of Industrial and Commercial Facilities/Activities**. The Permittees must work cooperatively throughout the Permit term to prioritize

and inspect selected industrial and commercial facilities/activities which discharge to receiving waters or to the MS4. No later than September 30, 2016, any existing agreements between the Permittees to accomplish such inspections must be updated as necessary to comply with this permit. At a minimum, the industrial and commercial facility inspection program must include:

(i) Priorities and procedures for inspections, including inspector training, and compliance assistance or education materials to inform targeted facility/activity operators of applicable requirements;

(ii) Provisions to record observations of a facility or activity;

(iii) Procedures to report findings to the inspected facility or activity, and to follow-up with the facility/activity operator as necessary;

(iv) A monitoring (or self monitoring) program for facilities that assesses the type and quantity of pollutants discharging to the MS4s;

(v) Procedures to exercise legal authorities to ensure compliance with applicable local storm water ordinances.

c) **Maintain Industrial and Commercial Facility/Activity Inventory**. The industrial and commercial facility/activity inventory must be updated at least annually. The updated inventory and a summary of the compliance assistance and inspection activities conducted, as well as any follow-up actions, must be submitted to EPA with each Annual Report.

4. Storm Water Infrastructure and Street Management. The Permittees must maintain their MS4 and related facilities to reduce the discharge of pollutants from the MS4 to the MEP. All Permittee-owned and operated facilities must be properly operated and maintained. This maintenance requirement includes, but is not limited to, structural storm water treatment controls, storm sewer systems, streets, roads, parking lots, snow disposal sites, waste facilities, and street maintenance and material storage facilities. The program must include the following:

a) **Storm Sewer System Inventory and Mapping**. No later than January 30, 2018, the Permittees must update current records to develop a comprehensive inventory and map of the MS4s and associated outfall locations. The inventory must identify all areas over which each Permittee has responsibility. The inventory must include:

(i) the location of all inlets, catch basins and outfalls owned/operated by the Permittee;

(ii) the location of all MS4 collection system pipes (laterals, mains, etc.) owned/operated by the Permittee, including locations where the MS4 is physically interconnected to the MS4 of another operator ;

(iii) the location of all structural flood control devices, if different from the characteristics listed above;

(iv) the names and locations of receiving waters of the U.S. that receive discharges from the outfalls;

(v) the location of all existing structural storm water treatment controls;

(vi) identification of subwatersheds, associated land uses, and approximate acreage draining into each MS4 outfall; and

(vii) the location of Permittee-owned vehicle maintenance facilities, material storage facilities, maintenance yards, and snow disposal sites; Permittee-owned or operated parking lots and roadways.

A summary description of the Permittees' storm sewer system inventory and a map must be submitted to EPA as part of the reapplication package required by Part VI.B

b) **Catch Basin and Inlet Cleaning.** No later than September 30, 2016, the Permittees must initiate an inspection program to inspect all Permittee-owned or operated catch basins and inlets at least every two years and take appropriate maintenance action based on those inspections. Inspection records must be maintained and summarized in each Annual Report.

c) **Street and Road Maintenance.** No later than September 30, 2015, the Permittees responsible for road and street maintenance must update any standard operating procedures for storm water controls to ensure the use of BMPs that, when applied to the Permittee's activity or facility, will protect water quality, and reduce the discharge of pollutants to the MEP. The operating procedures must contain, for each activity or facility, inspection and maintenance schedules specific to the activity, and appropriate pollution prevention/good housekeeping procedures for all of the following types of facilities and/or activities listed below. Water conservation measures should be considered for all landscaped areas.

(i) **Streets, roads, and parking lots**. The procedures must address, but are not limited to: road deicing, anti-icing, and snow removal practices; snow disposal areas; street/road material (e.g. salt, sand, or other chemical) storage areas; maintenance of green infrastructure/low impact development practices; and BMPs to reduce road and parking lot debris and other pollutants from entering the MS4. Within four years of the effective date of this permit, the Permittees must implement all of the pollution prevention/good housekeeping practices established in the SOPs for all streets, roads, highways, and parking lots with more than 3,000 square feet of impervious surface that are owned, operated, or maintained by the Permittees.

(ii) **Inventory of Street Maintenance Materials.** Throughout the Permit term, all Permittees with street maintenance

responsibilities must maintain an inventory of street /road maintenance materials, including use of sand and salt, and document the inventory in the corresponding Annual Reports.

(iii) **Manage Sand with Salt and Salt Storage Areas.** No later than September 30, 2017, the Permittees must address any sand, salt, or sand with salt material stockpiles at each of their materials storage locations to prevent pollutants in stormwater runoff from discharging to the MS4 or into any receiving waterbody. Examples how the Permittee may choose to address runoff from their material storage areas include, but are not limited to: building covered storage areas; fully containing the material stockpile area in a manner that prevents runoff from discharging to the MS4 or a receiving waterbody; relocating and/or otherwise consolidating material storage piles to alternative locations which prevents discharges to the MS4 or a receiving waterbody. The Permittees must identify their material storage locations in the SWMP documentation submitted to EPA with the 1st year Annual Report and reference the average quantity of material stored at each location in the inventory required in Part II.B.4.c.ii. Permittees must document in the 5th Year Annual Report how their material stockpiles have been addressed to prevent runoff from discharging to the MS4 or a receiving waterbody.

d) **Street, Road and Parking Lot Sweeping**. Each Permittee with street, road, and/or public parking lot maintenance responsibilities must update their respective sweepings management plans no later than September 30, 2015. Each updated plan must designate all streets, roads, and/or public parking lots which are owned, operated or maintained by that Permittee to fit within one of the following categories for sweeping frequency based on land use, traffic volumes or other factors:

- Residential – Streets and road segments that include, but are not limited to, light traffic zones and residential zones.
- Arterial and all other – Streets and road segments with high traffic volumes serving commercial or industrial districts.
- Public Parking Lots – large lots serving schools and cultural facilities, plazas, sports and event venues or similar facilities.

(i) No later than September 30, 2014, each Permittee with street, road, and/or public parking lot maintenance responsibilities must inventory and map all of their designated streets, roads, and public parking lots for sweeping frequency. The resulting inventory and map must be submitted as part of the 2nd Year Annual Report.

(ii) No later than September 30, 2015, Permittees with street, road, and/or public parking lot maintenance responsibilities must

sweep all streets, roads, and public parking lots that are owned, operated or maintained by that Permittee according to the following schedule:

Table II.B-2

Roadway Type	Sweeping Schedule			
	Two Times Per Month	**Every Six Weeks**	**Four Times Per Year**	**One Time Per Year**
Downtown Areas of Boise and Garden City	**X**			
Arterial and Collector Roadways (non-downtown)		**X**		
Residential Roadways			**X**	
Paved Alleys and Public Parking Lots				**X**

(iii) If a Permittee's existing overall street/road/parking lot sweeping program provides equivalent or greater street sweeping frequency to the requirements above, the Permittee must continue to implement its existing street/road/parking lot sweeping program.

(iv) For areas where sweeping is technically infeasible, the Permittees with street, road, and/or public parking lot maintenance responsibilities must document in the 1st Year Annual Report each area and indicate why sweeping is infeasible. The Permittee must document what alternative sweeping schedule will be used, or how the Permittee will increase implementation of other trash/litter control procedures to minimize pollutant discharges to the MS4 and to receiving waters.

(v) The Permittees with street, road, and/or public parking lot maintenance responsibilities must estimate the effectiveness of their street sweeping activities to minimize pollutant discharges to the MS4 and receiving waters, and document the following in each Annual Report:

- Identify any significant changes to the designated road/street/parking lot inventory and map, and the basis for those changes;
- Report annually on types of sweepers used, swept curb and/or lane miles, dates of sweeping by general location and frequency category, volume or weight of materials removed and a representative sample of the particle size distribution of swept material;
- Report annually on any public outreach efforts or other means to address excess leaves and other material as well as areas that are infeasible to sweep.

e) **Implement appropriate requirements for pesticide, herbicide, and fertilizer applications**. Permittees must continue to implement practices to reduce the discharge of pollutants to the MS4 associated with the application, storage and disposal of pesticides, herbicides and fertilizers from municipal areas and activities. Municipal areas and activities include, at a minimum, municipal facilities, public right-of-ways, parks, recreational facilities, golf courses, and landscaped areas. All employees or contractors of the Permittees applying restricted use pesticides must be registered as certified applicators.

f) **Develop and implement Storm Water Pollution Prevention Plans.** No later than September 30, 2015, the Permittees must develop and implement SWPPPs for all Permittee-owned material storage facilities, and maintenance yards located within the Permit area and identified in the inventory required in Parts II.B.3.a and II.B.4.a.viii. Permittee-owned facilities discharging storm water associated with industrial activity as defined in 40 CFR 122.26(b)(14) must obtain separate NPDES permit coverage as required in Part I.D.4 of this permit.

g) **Storm Water Management.** Each Permittee must ensure that any storm water management projects it undertakes after the effective date of this Permit are designed and implemented to prevent adverse impacts on water quality.

(i) Permittees must evaluate the feasibility of retrofitting existing storm water control devices to provide additional pollutant removal from collected storm water.

(ii) No later than the expiration date of this Permit, Permittees must identify and define all locations where such retrofit project opportunities are feasible, identify appropriate funding sources, and outline project timelines or schedule(s) for retrofit projects designed to better control the discharge of pollutants of concern to the Boise River and its tributaries.

h) **Litter Control.** Throughout the Permit term, each Permittee must continue to implement effective methods to reduce litter within their jurisdiction. Permittees must work with others as appropriate to control litter on a

regular basis and after major public events to reduce the discharge of pollutants to receiving waters.

i) **Training.** The Permittees must provide regular training to appropriate Permittee staff on all operations and maintenance procedures designed to prevent pollutants from entering the MS4 and receiving waters. Appropriate Permittee staff must receive training no later than September 30, 2015, and annually thereafter.

5. Illicit Discharge Management. An illicit discharge is any discharge to an MS4 that is not composed entirely of storm water. Exceptions are described in Part I.D. of this permit. The Permittees must continue to implement their illicit discharge management program to reduce to the MEP the unauthorized and illegal discharge of pollutants to the MS4. The program must include:

a) **Ordinance or other regulatory mechanisms.** Upon the effective date of this Permit, the Permittees must effectively prohibit non-storm water discharges to the MS4 (except those identified in Part 1.D of this permit) through enforcement of relevant ordinances or other regulatory mechanisms. Such ordinances/regulatory mechanisms must be updated prior to the expiration date of this Permit as necessary to provide adequate controls. To be considered adequate, an ordinance or regulatory mechanism must:

(i) Authorize the Permittee to prohibit, at a minimum, the following discharges to the MS4, unless otherwise authorized in Part 1.D:

- Sewage;
- Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
- Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility, including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
- Discharges of wash water from mobile operations, such as mobile automobile or truck washing, steam cleaning, power washing, and carpet cleaning, etc.;
- Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas - including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc. - where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);
- Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;

- Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
- Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
- Discharges of food-related wastes (grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

(ii) Prohibit and eliminate illicit connections to the MS4;

(iii) Control the discharge of spills, and prohibit dumping or disposal of materials other than storm water into the MS4.

b) **Illicit Discharge Complaint Reporting and Response Program.** At a minimum, Permittees must respond to reports of illicit discharges from the public in the following manner:

(i) **Complaint/ReportingHotline.** The Permittees must maintain the dedicated telephone number and email address, or other publicly available and accessible means in addition to the website required in Part II.B.6, for use by the public to report illicit discharges. This complaint hotline must be answered by trained staff during normal business hours. During non-business hours, a system must be in place to record incoming calls to the hotline and a system must be in place to guarantee timely response. The telephone number must be printed on appropriate education, training, and public participation materials produced under Part II.B.6, and clearly listed in the local telephone book as appropriate.

(ii) **Response to Complaints/Reports.** The Permittees must respond to all complaints or reports of illicit discharges as soon as possible, but no later than within two working days.

(iii) **Maintain log of complaints/reports received and actions taken.** The Permittees must maintain a record documenting all complaints or reports of illicit discharges and responses taken by the Permittees.

c) **Illicit Discharge Mapping.** No later than September 30, 2014, the Permittees must develop a map of reported and documented illicit discharges or illicit connections to identify priority areas. The map must identify, at a minimum, the location, type and relative quantity or severity of the known, recurrent or ongoing non-storm water discharges to the MS4. This map must be updated annually and used to target the specific outfall locations for that field screening season.

d) **Dry Weather Outfall Screening Program.** Permittees must implement, and update as necessary, a dry weather analytical and field screening monitoring program. This dry weather outfall screening program must emphasize frequent, geographically widespread monitoring to detect illicit discharges and illegal connections, and to reinvestigate potentially

problematic outfalls. At a minimum, the procedures must be based on the following guidelines and criteria:

(i) **Outfall Identification.** The Permittees must update as necessary the storm water outfall identification and screening plan, describing the reconnaissance activities that must be performed and information used to prioritize targeted outfalls and associated land uses.. The plan must discuss how chemical and microbiological analysis will be conducted on any flows identified during dry weather screening, including field screening methodologies and associated trigger thresholds to be used for determining follow-up action.

(ii) **Monitoring Illicit Discharges.** No later than September 30, 2015, dry weather analytical and field screening monitoring must be conducted at least once annually (or more often if the Permittees deem necessary). One third of the outfalls to be screened annually must be conducted within the June 1 and September 30th timeframe.

- Upon the effective date of the Permit, the Permittees must conduct visual dry weather screening of at least 20% of their total outfalls per year.
- The outfalls must be geographically dispersed across the MS4 and must represent all major land uses in the Permit area. In addition, the Permittees must ensure that dry weather screening includes, but is not limited to, screening of 20% outfalls discharging to impaired waters listed in Table II.C.
- When flows during dry weather are identified the Permittees must collect grab samples of the discharge for in-field analysis of the following indicator constituents: pH; total chlorine; detergents as surfactants; total copper; total phenols; *E. coli*; total phosphorus; turbidity; temperature; and suspended solids concentrations (to be measured in mg/L).
- Photos may be used to document conditions.
- Results of field sampling must be compared to established trigger threshold levels and/or existing state water quality standards. If the outfall is dry (no flowing or ponded runoff), the Permittees must make and record all applicable visual observations.
- All dry weather flows previously identified or documented by the Permittees to be associated with irrigation flows or ground water seepage must be sampled to assess pollutant loading associated with such flows. The results must be evaluated to identify feasible actions necessary to eliminate such flows and ensure compliance with Part I.D of this Permit. If field sample

results of such irrigation or groundwater seepage comply with Part I.D of this permit, annual sampling of that dry weather flow at that outfall is no longer required. Permittees must document in the SWMP document the specific location(s) of outfalls associated with these results as well as the Permittee's rationale for the conclusion to discontinue future dry weather screening at that location..

(iii) **Maintain Records of Dry Weather Screening.** The Permittees must keep detailed records of the dry weather screening with the following information at a minimum: time since last rain event; quantity of last rain event; site description (e.g., conveyance type, dominant watershed land uses); flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate); visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology); results of any in field sampling; and recommendations for follow-up actions to address identified problems, and documentation of completed follow-up actions.

e) **Follow-up.** The Permittees must investigate recurring illicit discharges identified as a result of complaints or as a result of dry weather screening inspections and sampling within fifteen (15) days of its detection to determine the source. Permittees must take appropriate action to address the source of the ongoing illicit discharge within 45 days of its detection.

f) **Prevent and Respond to Spills to the MS4.** Throughout the Permit term, the Permittees must coordinate appropriate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times. The Permittees must respond to, contain and clean up all sewage and other spills that may discharge into the MS4 from any source (including private laterals and failing septic systems).

g) **Facilitate Disposal of Used Oil and Toxic Materials.** The Permittees must continue to coordinate with appropriate agencies to ensure the proper management and disposal or recycling of used oil, vehicle fluids, toxic materials, and other household hazardous wastes by their employees and the public. Such a program must include educational activities, public information activities, and establishment of collection sites operated by the Permittees or other entity. The program must be implemented throughout the Permit term.

h) **Training.** No later than September 30, 2014, and annually thereafter, the Permittees must develop and provide training to staff on identifying and eliminating illicit discharges, spill, and illicit connections to the MS4. At a minimum, the Permittee's construction inspectors, maintenance field staff, and code compliance officers must be sufficiently trained to respond to illicit discharges and spills to the MS4.

6. Education, Outreach and Public Involvement.

a) **Comply with Applicable Requirements.** The Permittees must comply with applicable State and local public notice requirements when implementing their SWMP public involvement activities.

b) **Implement an Ongoing Education Outreach and Involvement Program.** The Permittees must conduct, or contract with other entities to conduct, an ongoing joint education, outreach and public involvement program aimed at residents, businesses, industries, elected officials, policy makers, and Permittee planning staff /other employees.

The goal of the education and outreach program is to reduce or eliminate behaviors and practices that cause or contribute to adverse storm water impacts. The goal of the public involvement program is to engage interested stakeholders in the development and implementation of the Permittees' SWMP activities to the extent allowable pursuant to the respective authority granted individual Permittees under Idaho law.

The Permittees' joint education and public involvement program must be designed to improve each target audience's understanding of the selected storm water issues, engage stakeholders, and help target audiences understand what they can do to positively impact water quality by preventing pollutants from entering the MS4.

(i) No later than September 30, 2014, the Permittees must implement or participate in an education, outreach and public involvement program using a variety of methods to target each of the audiences and at least one or more of the topics listed below:

1) General Public

- Watershed characteristics and subwatershed planning efforts as required in Part II.A.4;
- General impacts of storm water flows into surface water;
- Impacts from impervious surfaces;
- Source control best management practices and environmental stewardship, actions and opportunities for pet waste control/disposal, vehicle maintenance, landscaping and vegetative buffers;
- Water wise landscaping, water conservation, water efficiency.

2) General public and businesses, including home based and mobile businesses

- Best management practices for use and storage of automotive chemicals, hazardous cleaning supplies, vehicle wash soaps and other hazardous materials;

- Proper use and application of pesticides, herbicides and fertilizers;
- Impacts of illicit discharges and how to report them;
- Water wise landscaping, water conservation, water efficiency.

3) Homeowners, homeowner's associations, landscapers, and property managers
   - Yard care techniques protective of water quality, such as composting;
   - Best management practices for use and storage of pesticides, herbicides, and fertilizers;
   - Litter and trash control and recycling programs;
   - Best management practices for power washing, carpet cleaning and auto repair and maintenance;
   - Low Impact Development techniques, including site design, pervious paving, retention of mature trees and other vegetation;
   - Storm water treatment and flow/volume control practices;
   - Water wise landscaping, water conservation, water efficiency.
4) Engineers, contractors, developers, review staff, and land use planners
   - Technical standards for storm water site plans;
   - Low Impact Development techniques, including site design, pervious paving, retention of mature trees and other vegetation;
   - Storm water treatment and flow/volume control practices;
   - Water wise landscaping, water conservation, water efficiency.
5) Urban farmers and managers of public and private community gardens
   - Water wise landscaping, water conservation, and water efficiency.

(ii) The Permittees must assess, or participate in an effort to assess understanding and adoption of behaviors by the target audiences.

The resulting assessments must be used to direct storm water education and outreach resources most effectively.

(iii) The Permittees must track and maintain records of public education, outreach and public involvement activities.

c) **Targeted Education and Training.** For the specific topics identified in the Permit sections listed below, the Permittees must develop and implement, or contract with other entities to implement, targeted training programs to educate appropriate Permittee staff or other audiences within their jurisdiction. Where joint, cooperative education efforts to address these topics are not feasible, the individual Permitttee must ensure that the necessary education and training occurs for the following topics:

(i) II.B.1.f - Construction Storm Water Management Training for construction site operators and Permittee staff;

(ii) II.B.2.g – Permanent Storm Water Control Training for project operators and Permittee staff;

(iii) II.B.4.i– Storm Water Infrastructure and Street Management/ Maintenance training for the Permittee staff; and

(iv) II.B.5.h – Illicit Discharge Management Training for Permittee staff.

d) **Storm Water Website.** The Permittees must maintain and promote at least one publicly-accessible website that identifies each Permittee's SWMP activities and seeks to educate the audiences listed in Part II.B.6.b.i. The website(s) must describe and provide relevant information regarding the activities of all Permittees. The website must be updated no later than February 1, 2014, and updated at least quarterly thereafter as new material is available. The website must incorporate the following features:

(i) All reports, plans, or documents generated by each Permittee in compliance with this Permit must be posted on the website in draft form when input from the public is being solicited, and in final form when the document is completed.

(ii) Information and/or links to key sites that provide education, training, licensing, and permitting related to construction and post-construction storm water management controls and requirements for each jurisdiction. The website must include links to all applicable ordinances, policies and/or guidance documents related to the Permittees' construction and post-construction stormwater management control programs.

(iii) Information and/or links to appropriate controls for industrial and commercial activities,

(iv) Information and/or links to assist the public to report illicit connections and illegal dumping activity;

(v) Appropriate Permittee contact information, including phone numbers for relevant staff and telephone hotline, mailing addresses, and electronic mail addresses.

C. Discharges to Water Quality Impaired Receiving Waters.

1. The Permittees must conduct a storm water discharge monitoring program as required in Part IV.
2. For the purposes of this Permit and as listed in Table II.C, the Clean Water Act §303 (d) listed water bodies are those cited in the IDEQ 2010 Integrated Report including, but not limited to the Lower Boise River, and its associated tributaries. "Pollutant(s) of concern" refer to the pollutant(s) identified as causing or contributing to the water quality impairment. Pollutants of concern for the purposes of this Permit are: total phosphorus, sediment, temperature, and *E. coli*.
3. Each Permittees' SWMP documentation must include a description of how the activities of each minimum control measure in Part II.B are implemented by the Permittee to control the discharge of pollutants of concern and ensure that the MS4 discharges will not cause or contribute to an excursion above the applicable Idaho water quality standards. This discussion must specifically identify how the Permittee evaluates and measures the effectiveness of the SWMP to control the pollutants of concern. For those activities identified in Part II.B requiring multiple years to develop and implement, the Permittee must provide interim updates on progress to date. Consistent with Part II.A.1.b, each Permittee must submit this description of the SWMP implementation to EPA and IDEQ as part of the 1st Year Annual Report required in Part IV.C, and must update its description annually in subsequent Annual Reports.

Table II.C

Clean Water Act §303 (d) listed Water Bodies and Pollutants of Concern

Receiving Water Body Assessment Unit/ Description	Pollutants of Concern Causing Impairment
ID17050114SW011a_06 ***Boise River – Diversion Dam to River Mile 50***	Temperature
ID17050114SW005_06 ***Boise River – River Mile 50 to Star Bridge***	Temperature, Sediment, *E. coli.*
ID17050114SW005_06a ***Boise River – Star to Middleton***	Temperature, Sediment, *E. coli.*
ID17050114SW005_06b ***Boise River- Middleton to Indian Creek***	Temperature, Total phosphorus, Sediment, *E. coli.*
ID17050114SW001_06 ***Boise River- Indian Creek to the mouth***	Temperature, Total phosphorus, Sediment, *E. coli.*
ID17050114SW008_03 ***Tenmile Creek - 3rd order below Blacks Creek Reservoir***	Sediment, *E. coli.*
ID17050114SW010_02 ***Fivemile Creek - 1st & 2nd order tributaries***	*E. coli.*
ID17050114SW010_03 ***Fivemile Creek - 3rd order tributaries***	Sediment, *E. coli.*

D. Reviewing and Updating the SWMP.

1. Permittees must annually review their SWMP actions and activities for compliance with this Permit as part of the preparation of the Annual Report required under Part IV.C.2.

2. Permittees may request changes to any SWMP action or activity specified in this Permit in accordance with the following procedures:
   a) Changes to delete or replace an action or activity specifically identified in this Permit with an alternate action or activity may be requested by the Permittees at any time. Modification requests to EPA must include:
      (i) An analysis of why the original action or activity is ineffective, infeasible, or cost prohibitive;
      (ii) Expectations on the effectiveness of the replacement action or activity; and
      (iii) An analysis of why the replacement action or activity is expected to better achieve the Permit requirements.
   b) Change requests must be made in writing and signed by the Permittees in accordance with Part VI.E.
   c) Documentation of any of the actions or activities required by this Permit must be submitted to EPA upon request.
   d) EPA may review Annual Reports or other such documentation and subsequently notify the Permittees that changes to the SWMP actions and activities are necessary to:
      (i) Address discharges from the MS4 that are causing or contributing to water quality impacts;
      (ii) Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements; or
      (iii) Include other conditions deemed necessary by EPA to comply with water quality standards, and/or other goals and requirements of the CWA.
   e) If EPA notifies the Permittees that changes are necessary pursuant to Parts II.D.2.a or II.D.2.d, the notification will offer the Permittees an opportunity to propose alternative program changes to meet the objectives of the requested modification. Following this opportunity, the Permittees must implement any required changes according to the schedule set by EPA.

4. Any modifications to this Permit will be accomplished according to Part VI.A of this Permit.

E. Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation. The Permittees must implement the actions and activities of the SWMP in all new areas added or transferred to the Permittee's MS4 (or for which a Permittee becomes responsible for implementation of storm water quality controls) as expeditiously as practicable, but not later than one year from the date upon which the new areas were added. Such additions and schedules for implementation must be documented in the next Annual Report following the transfer.

F. SWMP Resources. The Permittees must continue to provide adequate finances, staff, equipment and other support capabilities to implement their SWMP actions and activities outlined in this permit. The Permittees must report on total costs associated with SWMP implementation over the prior 12 month reporting period in each Annual Report. Permittees are encouraged to consider establishing consistent funding sources for continued program implementation.

G. Legal Authority. To the extent allowable pursuant to the respective authority granted individual Permittees under Idaho law, each Permittee must operate to, at a minimum:

- Prohibit and eliminate, through statute, ordinance, policy, permit, contract, court or administrative order or other similar means, the contribution of pollutants to the MS4 by illicit connections and discharges to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-storm water discharges not otherwise authorized under Part I.D. of this Permit;
- Control through statute, ordinance, policy, permit, contract, court or administrative order, or other similar means, the discharge to the MS4 of spills, dumping or disposal of materials other than storm water;
- Control through interagency agreements among the Permittees the contribution of pollutants from one portion of the MS4 to another portion of the MS4;
- Require compliance with conditions in statutes, ordinances, policy, permits, contracts, or court or administrative orders; and
- Carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with Permit conditions including the prohibition on illicit discharges to the MS4.

No later than January 30, 2014, each Permittee must review and revise its relevant ordinances or other regulatory mechanisms, (or adopt new ordinances or regulatory mechanisms that provide it with adequate legal authority as allowed and authorized pursuant to applicable Idaho law), to control pollutant discharges into and from its MS4 and to meet the requirements of this permit. As part of the SWMP documentation that accompanies the 1st Year Annual Report, each Permittee must summarize all of its unique legal authorities which satisfy the five criteria listed above.

III. Schedule for Implementation and Required Submissions

The Permittees must complete SWMP actions, and/or submit documentation, to EPA and IDEQ as summarized below. Unless otherwise noted, Annual Reports must include the interim or completed status of required SWMP activities occurring during the corresponding reporting period as specified in Part IV.C.3, and include program summary statistics, copies of interim or final documents, and/or other supporting information.

Table III. Schedule for Implementation and Required Submissions

Permit Part	Item/Action	Due Date
I.C.3	Update intergovernmental agreement no later than July 1, 2013.	Submit updated intergovernmental agreement with the 1st Year Annual Report.
II.A.1.b, II.C.3	SWMP documentation	Submit SWMP documentation with the 1st Year Annual Report. Include updated documentation in each subsequent Annual Report.
II.A.4	Complete two subwatershed planning documents	Identify subwatersheds in 1st Year Annual Report; Submit two completed planning documents with the 4rd Year Annual Report.
II.B.1.a	Update construction runoff control ordinances/ regulatory mechanisms, if necessary	September 30, 2015; submit any updated ordinances etc w/ 3rd Year Annual Report.
II.B.1.b	Update Construction Stormwater Management Manual(s)	September 30, 2015; submit any updated documents with 3rd Year Annual Report.
II.B.1.e	Develop & Implement Enforcement Response Policy (ERP)	September 30, 2016; submit final ERPs w/ 4th Year Annual Report
II.B.2.a	Update ordinance or regulatory mechanism requiring long term onsite stormwater management controls	January 30, 2018; submit ordinance or regulatory mechanism with 5th Year Annual Report.
II.B.2.b	Update Stormwater Design Criteria Manual(s)	September 30, 2015; submit any updated ordinances etc w/ 3rd Year Annual Report
II.B.2.c	Develop & Implement Green Infrastructure/Low Impact Development (LID) Incentive Strategy;	September 30, 2015;
II.B.2.c.i	Evaluate Effectiveness of LID Practices via three Pilot Projects;	Submit strategy document, identify 3 pilot projects in the 3rd Year Annual Report.
II.B.2.c.ii, IV.A.10	Identify recommendations for specific LID practices to be adopted within the Permit area	Progress report on strategy implementation/ Pilot Project evaluations w/4rd Year Annual Report. Submit final evaluations & recommendations with the 5th Year Annual Report.
II.B.2.c.iii	Develop Priority Riparian Area List	September 30, 2015; Submit priority area list with the 3rd Year Annual Report.
II.B.2.c.iii	Complete Outfall Disconnection Project	Document progress on outfall disconnection project w/3rd Year Annual Report. Complete outfall disconnection project by January 30, 2018; document completed project in 5th Year Annual Report.

Table III. Schedule for Implementation and Required Submissions, continued

Permit Part	Item/Action	Due Date
II.B.2.c.iv	Consider/install stormwater runoff reduction techniques for streets, roads & parking lot repair work entering design phase after February 1, 2013 where feasible	Document all locations of street/road/parking lot repair projects where runoff reduction techniques were installed w/5th Year Annual Report.
II.B.2.e.i	O&M Database of new permanent stormwater controls; Incorporate all existing controls into database	Include new controls beginning February 1, 2013; Existing controls, no later than January 30, 2018.
II.B.2.f.i	Identify high priority locations; annual inspections	September 30, 2017
II.B.2.f.ii	Develop inspection checklists	September 30, 2017
II.B.2.f.iii	Enforcement Response Policy for SW controls	September 30, 2017
II.B.2.g	Conduct Education/Training on Permanent SW Controls	September 30, 2015; staff training & training for local audiences, September 30, 2016.
II.B.3.a	Inventory Industrial & Commercial facilities/activities	September 30, 2016
II.B.3.a.iii	Identify two specific activities, develop BMPs, and begin compliance assistance education program	September 30, 2016
II.B.3.b	Update Permittee agreements; inspect selected industrial & commercial facilities/activities	September 30, 2016
II.B.3.c	Document industrial & commercial inspection and compliance assistance activities	Annually
II.B.4.a	Update MS4 system inventory & map	No later than January 30, 2018; include w/5th Year Annual Report
II.B.4.b	Inspect of catch basins at least every two years	September 30, 2016
II.B.4.c	Update SOPs for Street & Road Maintenance	September 30, 2015
II.B.4.c.iii	Cover storage facilities for sand/salt storage areas	September 30, 2017; Identify locations in SWMP w/1st year Annual Report; Final documentation w/5th Year Annual Report
II.B.4.d	Update Street/Road/Parking Lot Sweeping Plans	September 30, 2015
II.B.4.d.i	Inventory/map designated areas	September 30, 2014; submit w/2st Year Annual Report
II.B.4.d.ii	Sweep according to schedule	September 30, 2015
II.B.4.d.iv,	Identify infeasible sweeping areas, alternative schedule or other program	Document in 1st Year Annual Report
II.B.4.d.v	Estimate sweeping effectiveness	Document in each Annual Report
II.B.4.f	Develop facility& maintenance yards SWPPPs	September 30, 2015
II.B.4.i	Train Permittee staff	September 30, 2016; annually thereafter
II.B.4.g	Evaluate the feasibility of retrofitting existing control devices	January 30, 2018; submit evaluation with 5th Year Annual Report

Table III. Schedule for Implementation and Required Submissions, continued

Permit Part	Item/Action	Due Date
II.B.5.c	Inventory/Map Illicit Discharge Reports	September 30, 2014, update annually
II.B.5.d.ii, IV.A.11	Conduct dry weather outfall screening; update screening plan; inspect 20% of outfalls per year	September 30, 2015; inspect 20% annual ly
II.B.6.b	Conduct public education & assess understanding to specific audiences	September 30, 2014; ongoing
II.B.6.d	Maintain, Promote, and Update Storm water Website	September 30, 2014, quarterly thereafter
II.C.3, II.A.1.b	Identify how Permittee controls are implemented to reduce discharge of pollutants of concern, measure SWMP effectiveness	Include discussion in SWMP documentation submitted with 1st Year Annual Report
II.E	Implement SWMP in all geographic areas newly added or annexed by Permittee	No later than one year from date new areas are added to Permittee's jurisdiction
II.F	Report SWMP implementation costs for the corresponding 12 month reporting period	Within each Annual Report
II.G	Review & Summarize legal authorities or regulatory mechanisms used by Permittee to implement & enforce SWMP & Permit requirements	No later than January 30, 2014, summarize legal authorities within the required SWMP documentation submitted with 1st Annual Report
IV.A.1	Assess & Document Permit Compliance	Annually; submit with Annual Reports
IV.A.2	Develop & Complete Stormwater Monitoring & Evaluation Plan	September 30, 2014; Submit Completed Plan with 2nd Year Annual Report
IV.A.7.a	Update *Boise NPDES Municipal SW Monitoring Plan*	September 30, 2015
IV.A.7.b	Monitor Five Representative Outfalls During Wet Weather; sample three times per year thereafter	No later than September 30, 2014
IV.A.8	If Applicable: update SW Monitoring & Evaluation Plan to include WQ Monitoring and/or Fish Tissue Sampling	If applicable: Update SW Monitoring & Evaluation Plan by September 30, 2014 to include WQ Monitoring and/or Fish Tissue Sampling; submit with 2nd Year Annual Report
IV.A.9	Evaluate Effectiveness of 2 Structural Control Techniques Currently Required by the Permittees	Begin evaluations no later than September 30, 2015; document in Annual Report(s)
IV.C.1	Submit Stormwater Outfall Discharge Data	2nd Year Annual Report, annually thereafter
IV.C.2	Submit WQ Monitoring or Fish Tissue Sampling Data Report (if applicable)	2nd Year Annual Report, annually thereafter
IV.C.3	Submit Annual Reports	1st Year Annual Report due January 30, 2014; all subsequent Annual Reports are due annually no later than January 30th; See Table IV.C.
VI.B	Submit Permit Renewal Application	No later than 180 days prior to Permit Expiration Date; see cover page. Alternatively, Renewal Application may be submitted as part of the 4th Year Annual Report.

IV. Monitoring, Recordkeeping and Reporting Requirements.

A. Monitoring

1. **Assess Permit Compliance.** At least once per year, each Permittee must individually evaluate their respective organization's compliance with these Permit conditions, and progress toward implementing each of the control measures defined in Part II. The compliance evaluation must be documented in each Annual Report required in Part IV.C.2.

2. **Stormwater Monitoring and Evaluation Program Plan and Objectives.** The Permittees must conduct a wet weather monitoring and evaluation program, or contract with another entity to implement such a program. This stormwater monitoring and evaluation program must be designed to characterize the quality of storm water discharges from the MS4, and to evaluate overall effectiveness of selected storm water management practices.

   a) No later than September 30, 2014, the Permittees must develop a stormwater monitoring and evaluation plan that includes the quality assurance requirements, outfall monitoring, in-stream and/or fish tissue monitoring (as appropriate), evaluation of permanent storm water controls and evaluation of LID pilot project effectiveness as described later in this Part. In general, the Permittees must develop and conduct a stormwater monitoring and evaluation program to:

      (i) Broadly estimate reductions in annual pollutant loads of sediment, bacteria, phosphorus and temperature discharged to impaired receiving waters from the MS4s, occurring as a result of the implementation of SWMP activities;

      (ii) Assess the effectiveness and adequacy of the permanent storm water controls and LID techniques or controls selected for evaluation by the Permittees and which are intended to reduce the total volume of storm water discharging from impervious surfaces and/or improve overall pollutant reduction in stormwater discharges; and

      (iii) Identify and prioritize those portions of each Permittee's MS4 where additional controls can be accomplished to further reduce total volume of storm water discharged and/or reduce pollutants in storm water discharges to waters of the U.S.

   b) The final, updated stormwater monitoring and evaluation plan must be submitted to EPA with the 2nd Year Annual Report.

3. **Representative Sampling.** Samples and measurements must be representative of the nature of the monitored discharge or activity**.**

4. **Analytical Methods.** Sample collection, preservation, and analysis must be conducted according to sufficiently sensitive methods/test procedures approved under 40 CFR Part 136, unless otherwise approved by EPA. Where an approved 40 CFR Part 136 method does not exist, and other test procedures

have not been specified, any available method may be used after approval from EPA**.**

5. **Quality Assurance Requirements.** The Permittees must develop or update a quality assurance plan (QAP) for all analytical monitoring conducted in accordance with this Part. The QAP must be developed concurrently as part of the stormwater monitoring and evaluation plan. The Permittees must submit the QAP as part of the stormwater monitoring and evaluation plan to EPA and IDEQ in the 2nd Year Annual Report. Any existing QAP may be modified for the requirements under this section**.**

   a) The QAP must be designed to assist in the collection and analysis of storm water discharges in support of this Permit and in explaining data anomalies when they occur.

   b) Throughout all sample collection, analysis and evaluation activities, Permittees must use the EPA-approved QA/QC and chain-of-custody procedures described in the most current version of the following documents:

      (i) *EPA Requirements for Quality Assurance Project Plans EPA-QA/R-5* (EPA/240/B-01/003, March 2001). A copy of this document can be found electronically at: http://www.epa.gov/quality/qs-docs/r5-final.pdf;

      (ii) *Guidance for Quality Assurance Project Plans EPA-QA/G-5*, (EPA/600/R-98/018, February, 1998). A copy of this document can be found electronically at: http://www.epa.gov/r10earth/offices/oea/epaqag5.pdf ;

      (iii) *Urban Storm BMP Performance Monitoring*, (EPA-821-B-02-001, April 2002). A copy of this document can be found electronically at: http://www.epa.gov/npdes/pubs/montcomplete.pdf

      The QAP should be prepared in the format specified in these documents.

   c) At a minimum, the QAP must include the following:

      (i) Organization chart reflecting responsibilities of key Permittee staff;

      (ii) Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample representativeness and completeness, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements;

      (iii) Data quality objectives;

(iv) Map(s) and associated documentation reflecting the location of each sampling point and physical description including street address or latitude/longitude;

(v) Qualification and training of personnel;

(vi) Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the Permittees;

(vii) Data management;

(viii) Data review, validation and verification; and

(ix) Data reconciliation.

d) The Permittees must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP. The amended QAP must be submitted to EPA as part of the next Annual Report.

e) Copies of any current QAP must be maintained by the Permittees and made available to EPA and/or IDEQ upon request.

6. **Additional Monitoring by Permittees.** If the Permittees monitor more frequently, or in more locations, than required by this Permit, the results of any such additional monitoring must be included and summarized with other data submitted to EPA and IDEQ as required in Part IV.C.

7. **Storm Water Outfall Monitoring**

a) No later than September 30, 2015, the Permittees must update the existing *Boise NPDES Municipal Storm Water Permit Monitoring Plan* to be consistent with the monitoring and evaluation program objectives and plan as described in Part IV.A.2. At a minimum, the plan must describe five outfall sample locations, and any additional or alternative locations, as defined by the Permittees. The outfalls selected by the Permittees to be monitored must be identified as representative of all major land uses occurring within the Permit area.

b) No later than September 30, 2014, the Permittees must begin monitoring discharges from the identified five storm water outfalls during wet weather events at least three times per year. The specific minimum monitoring requirements are outlined in Table IV.A, but may be augmented based on the Permittees' updated stormwater monitoring and evaluation plan required by Part IV.A.2. The Permittees must include any additional parameters to be sampled in an updated Table IV.A within the final updated stormwater monitoring and evaluation plan submitted to EPA with the 2nd Annual Report.

Table IV.A – Outfall Monitoring Requirements[1, 2]
PARAMETER SAMPLING
Ammonia
Total Kjeldahl Nitrogen (TKN) (mg/l)
Nitrate + Nitrite
Total Phosphorus (mg/l)
Dissolved Orthophosphate (mg/l)
E. coli
Biological Oxygen Demand (BOD5) (mg/l)
Chemical Oxygen Demand (COD) (mg/l)
Total Suspended Solids (TSS) (mg/l)
Total Dissolved Solids (TDS) (mg/l)
Dissolved Oxygen
Turbidity (NTU)
Temperature
pH (S.U)
Flow/Discharge, Volume, in cubic feet
Arsenic – Total
Cadmium- Total and Dissolved
Copper – Dissolved
Lead – Total and Dissolved
Mercury – Total
Zinc – Dissolved
Hardness (as CaCO3) (mg/l)

[1] Five or more outfall locations will be identified in the Permittees' updated stormwater monitoring and evaluation plan

[2] A minimum of ***three (3) samples*** must be collected during wet weather storm events in each reporting year, assuming the presence of storm events sufficient to produce a discharge.

8. **Water Quality Monitoring and/or Fish Tissue Sampling**. At the Permittees' option and to augment the storm water discharge data collection required in Part IV.A.7 above, one or more of the Permittees may conduct, or contract with others to conduct, water quality monitoring and/or fish tissue sampling within the Lower Boise River Watershed.

   a) If the Permittees elect to conduct in-stream water quality monitoring and/or fish tissue sampling within the Lower Boise River Watershed, the Permittees must revise the stormwater monitoring and evaluation plan and QAP to describe the monitoring and/or sampling effort(s) per Part IV.A.2 and IV.A.5, no later September 30, 2014.

   b) The documentation of the Permittees' intended in-stream water quality monitoring and/or fish tissue sampling activities must be included in the final updated stormwater monitoring and evaluation plan submitted with the 2nd Year Annual Report as required in Part IV.A.2.b.

   c) The Permittees are encouraged to engage in cooperative efforts with other organizations to collect reliable methylmercury fish tissue data within a specific geographic area of the Lower Boise River Watershed. The objective of the cooperative effort is to determine if fish tissue concentrations of methylmercury in the Lower Boise River are compliant with Idaho's methylmercury fish tissue criterion of 0.3 mg/kg.

      (i) In particular, the Permittees are encouraged to cooperate with other organizations to collect data through implementation of the Methylmercury Fish Tissue Sampling requirements specified in NPDES Permits # ID-002044-3 and ID-002398-1 as issued to the City of Boise. Beginning with the 2nd Year Annual Report, the Permittees' may (individually or collectively) submit documentation in each Annual Report which describes their specific involvement over the prior reporting period, and may reference fish tissue sampling plans and data reports as developed or published by others through the cooperative watershed effort.

9. **Evaluate the Effectiveness of Required Structural Controls**. Within two years of the effective date of this Permit, the Permittees must select and begin to evaluate at least two different types of permanent structural storm water management controls currently mandated by the Permittees at new development or redevelopment sites. For each selected control, this evaluation must determine whether the control is effectively treating or preventing the discharge of one or more of the pollutants of concern into waterbodies listed in Table II.C. The results of this evaluation, and any recommendations for improved treatment performance, must be submitted to EPA in subsequent Annual Reports as the evaluation projects are implemented and completed.

10. **Evaluate the Effectiveness of Green Infrastructure/Low Impact Development Pilot Projects**. The Permittees must evaluate the performance and effectiveness of the three pilot projects required in Part II.B.2.c of this Permit, or contract with another entity to conduct such evaluations. An evaluation summary of the LID technique or control and any recommendations

of improved treatment performance must be submitted in subsequent Annual Reports as the evaluation projects are implemented and completed.

11. **Dry Weather Discharge Screening.** The Permittees must implement a dry weather screening program, or contract with another entity to implement such a program, as required in Part II.B.5.d.

B. Recordkeeping

1. **Retention of Records.** The Permittees must retain records and copies of all information (e.g., all monitoring, calibration, and maintenance records; all original strip chart recordings for any continuous monitoring instrumentation; copies of all reports required by this Permit; storm water discharge monitoring reports; a copy of the NPDES permit; and records of all data or information used in the development and implementation of the SWMP and to complete the application for this Permit;) for a period of at least five years from the date of the sample, measurement, report or application, or for the term of this Permit, whichever is longer. This period may be extended at the request of the EPA at any time.
2. **Availability of Records.** The Permittees must submit the records referred to in Part IV.B.1 to EPA and IDEQ only when such information is requested. At a minimum, the Permittees must retain all records comprising the SWMP required by this Permit (including a copy of the Permit language and all Annual Reports) in a location and format that are accessible to EPA and IDEQ. The Permittees must make all records described above available to the public if requested to do so in writing. The public must be able to view the records during normal business hours. The Permittees may charge the public a reasonable fee for copying requests**.**

C. Reporting Requirements

1. **Storm Water Discharge Monitoring Report.** Beginning with the 2nd Year Annual Report, and in subsequent Annual Reports, all storm water discharge monitoring data collected to date must be submitted as part of the Annual Report. At a minimum, this Storm Water Discharge Monitoring Report must include:
   a) Dates of sample collection and analyses;
   b) Results of sample analyses;
   c) Location of sample collection. and
   d) Summary discussion and interpretation of the data collected, including a discussion of quality assurance issues and comparison to previously collected information, as appropriate.
2. **Water Quality Monitoring and/or Fish Tissue Sampling Report(s).** If the Permittees elect to conduct water quality monitoring and/or fish tissue sampling as specified in Part IV.A.8, all relevant monitoring data collected to date must

be submitted as part of each Annual Report beginning with the 2nd Year Annual Report. Summary data reports as prepared by other organizations with whom the Permittee(s) cooperate may be submitted to fulfill this requirement. At a minimum, this Water Quality Monitoring and/or Fish Tissue Sampling Report must include:

a) Dates of sample collection and analyses;

b) Results of sample analyses;

c) Locations of sample collection; and

d) Summary discussion and interpretation of the data collected, including discussion of quality assurance issues and comparison to previously collected information, as appropriate.

3. **Annual Report.**

a) No later than January 30th of each year beginning in 2014, and annually thereafter, each Permittee must submit an Annual Report to EPA and IDEQ. The reporting period for the 1st Year Annual Report will be from February 1, 2013, through September 30, 2013. Reporting periods for subsequent Annual Reports are specified in Table IV.C. Copies of all Annual Reports, including each Permittee's SWMP documentation, must be available to the public, through a Permittee-maintained website, and/or through other easily accessible means.

Table IV.C - Annual Report Deadlines

Annual Report	Reporting Period	Due Date
1st Year Annual Report	February 1, 2013–September 30, 2013	January 30, 2014
2nd Year Annual Report	October 1, 2013-September 30, 2014	January 30, 2015
3rd Year Annual Report	October 1, 2014-September 30, 2015	January 30, 2016
4th Year Annual Report	October 1, 2015-September 30, 2016	January 30, 2017
5th Year Annual Report	October 1, 2016-December 31, 2017	January 30, 2018

b) Preparation and submittal of the Annual Reports must be coordinated by Ada County Highway District. Each Permittee is responsible for content of their organization's SWMP documentation and Annual Report(s) relating to SWMP implementation for portions of the MS4s for which they are responsible.

c) The following information must be submitted in each Annual Report:

(i) A updated and current document describing the SWMP as implemented by the specific Permittee, in accordance with Part II.A.1.b;

(ii) A narrative assessment of the Permittee's compliance with this Permit, describing the status of implementing the control measures in Parts II and IV. The status of each control measure must be addressed, even if activity has previously been completed, has not yet been implemented, does not apply to the Permittee's jurisdiction or operation, or is conducted on the Permittee's behalf by another entity;

(iii) Discussion of any information collected and analyzed during the reporting period, including but not limited to storm water monitoring data not included with the Storm Water Discharge Monitoring Report; dry weather monitoring results; Green Infrastructure/LID pilot project evaluation results, structural control evaluation results, and any other information collected or used by the Permittee(s) to assess the success of the SWMP controls at improving receiving water quality to the maximum extent practicable;

(iv) A summary of the number and nature of public education programs; the number and nature of complaints received by the Permittee(s), and follow-up actions taken; and the number and nature of inspections, formal enforcement actions, or other similar activities as performed by the Permittee(s) during the reporting period;

(v) Electronic copies of new or updated education materials, ordinances (or other regulatory mechanisms), inventories, guidance materials, or other products produced as required by this Permit during the reporting period;

(vi) A description and schedule of the Permittee's implementation of additional controls or practices deemed necessary by the Permittee, based on monitoring or other information, to ensure compliance with applicable water quality standards;

(vii) Notice if the Permittee is relying on another entity to satisfy any of the Permit obligations, if applicable; and

(viii) Annual expenditures for the reporting period, and estimated budget for the reporting period following each Annual Report.

d) If, after the effective date of this Permit, EPA provides the Permittees with an alternative Annual Report format, the Permittees may use the alternative format in lieu of the required elements of Part IV.C.3.c.

D. Addresses

Reports and other documents required by this Permit must be signed in accordance with Part VI.E and submitted to each of the following addresses:

IDEQ: Idaho Department of Environmental Quality
Boise Regional Office
Attn: Water Program Manager
1410 North Hilton
Boise, ID 83854

EPA: United States Environmental Protection Agency
Attention: Storm Water MS4 Compliance Program
NPDES Compliance Unit
1200 6th Avenue, Suite 900 (OCE-133)
Seattle, WA 98101

Any documents and/or submittals requiring formal EPA approval must also be submitted to the following address:

United States Environmental Protection Agency
Attention: Storm Water MS4 Permit Program
NPDES Permits Unit
1200 6th Avenue, Suite 900 (OWW-130)
Seattle, WA 98101

V. Compliance Responsibilities.

A. Duty to Comply. The Permittees must comply with all conditions of this Permit. Any Permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for Permit termination, revocation and reissuance, or modification, or for denial of a Permit renewal application.

B. Penalties for Violations of Permit Conditions

1. Civil and Administrative Penalties. Pursuant to 40 CFR Part 19 and the Act, any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $37,500 per day for each violation).

2. Administrative Penalties. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of this Act. Pursuant to 40 CFR Part 19

and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $16,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $37,500). Pursuant to 40 CFR Part 19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701) (currently $16,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $177,500).

3. Criminal Penalties

a) **Negligent Violations**. The Act provides that any person who negligently violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two years, or both.

b) **Knowing Violations**. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six years, or both.

c) **Knowing Endangerment**. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

d) **False Statements.** The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Permit shall, upon conviction, be

punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for the Permittees in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Permit.

D. Duty to Mitigate. The Permittees must take all reasonable steps to minimize or prevent any discharge or disposal in violation of this Permit that has a reasonable likelihood of adversely affecting human health or the environment**.**

E. Proper Operation and Maintenance. The Permittees must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittees to achieve compliance with the conditions of this Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the Permittees only when the operation is necessary to achieve compliance with the conditions of the Permit.

F. Toxic Pollutants. The Permittees must comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the Permit has not yet been modified to incorporate the requirement.

G. Planned Changes. The Permittee(s) must give notice to the Director and IDEQ as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR §122.29(b); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in the Permit.

H. Anticipated Noncompliance. The Permittee(s) must give advance notice to the Director and IDEQ of any planned changes in the permitted facility or activity that may result in noncompliance with this Permit.

I. Twenty-four Hour Notice of Noncompliance Reporting

1. The Permittee(s) must report the following occurrences of noncompliance by telephone within 24 hours from the time the Permittee(s) becomes aware of the circumstances:

a) any noncompliance that may endanger health or the environment;

b) any unanticipated bypass that exceeds any effluent limitation in the permit (See Part IV.F., "Bypass of Treatment Facilities");

c) any upset that exceeds any effluent limitation in the permit (See Part IV.G., "Upset Conditions"); or

d) any overflow prior to the stormwater treatment facility over which the Permittee(s) has ownership or has operational control. An overflow is any spill, release or diversion of municipal sewage including:

(1) an overflow that results in a discharge to waters of the United States; and

(2) an overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral) that does not reach waters of the United States.

2. The Permittee(s) must also provide a written submission within five days of the time that the Permittee(s) becomes aware of any event required to be reported under subpart 1 above. The written submission must contain:

a) a description of the noncompliance and its cause;

b) the period of noncompliance, including exact dates and times;

c) the estimated time noncompliance is expected to continue if it has not been corrected; and

d) steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

e) if the noncompliance involves an overflow, the written submission must contain:

(1) The location of the overflow;

(2) The receiving water (if there is one);

(3) An estimate of the volume of the overflow;

(4) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

(5) The estimated date and time when the overflow began and stopped or will be stopped;

(6) The cause or suspected cause of the overflow;

(7) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;

(8) An estimate of the number of persons who came into contact with wastewater from the overflow; and

(9) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

3. The Director of the Office of Compliance and Enforcement may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

4. Reports must be submitted to the addresses in Part IV.D ("Addresses").

J. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The Permittee(s) may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Part.

2. Notice.

a) **Anticipated bypass**. If the Permittee(s) knows in advance of the need for a bypass, it must submit prior written notice, if possible at least 10 days before the date of the bypass.

b) **Unanticipated bypass.** The Permittee(s) must submit notice of an unanticipated bypass as required under Part III.G ("Twenty-four Hour Notice of Noncompliance Reporting").

3. Prohibition of bypass.

a) Bypass is prohibited, and the Director of the Office of Compliance and Enforcement may take enforcement action against the Permittee(s) for a bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The Permittee(s) submitted notices as required under paragraph 2 of this Part.

b) The Director of the Office of Compliance and Enforcement may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part.

K. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the Permittee(s) meets the requirements of paragraph 2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the Permittee(s) must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a) An upset occurred and that the Permittee(s) can identify the cause(s) of the upset;

b) The permitted facility was at the time being properly operated;

c) The Permittee(s) submitted notice of the upset as required under Part V.I, "*Twenty-four Hour Notice of Noncompliance Reporting;*" and

d) The Permittee(s) complied with any remedial measures required under Part V.D, "*Duty to Mitigate.*"

3. Burden of proof. In any enforcement proceeding, the Permittee(s) seeking to establish the occurrence of an upset has the burden of proof.

VI. General Provisions

A. Permit Actions.

1. This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR **§§** 122.62, 122.64, or 124.5. The filing of a request by the Permittee(s) for a Permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any Permit condition.

2. Permit coverage may be terminated, in accordance with the provisions of 40 CFR §§122.64 and 124.5, for a single Permittee without terminating coverage for the other Permittees subject to this Permit.

B. Duty to Reapply. If the Permittees intend to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittees must apply for and obtain a

new permit. In accordance with 40 CFR §122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Director, the Permittees must submit a new application at least 180 days before the expiration date of this Permit, or alternatively in conjunction with the 4th Year Annual Report. The reapplication package must contain the information required by 40 CFR §122.21(f), which includes: name and mailing address(es) of the Permittees(s) that operate the MS4(s), and names and titles of the primary administrative and technical contacts for the municipal Permittees(s). In addition, the Permittees must identify any previously unidentified water bodies that receive discharges from the MS4(s); a summary of any known water quality impacts on the newly identified receiving waters; a description of any changes to the number of applicants; and any changes or modifications to the Storm Water Management Program as implemented by the Permittees. The re-application package may incorporate by reference the 4th Year Annual Report when the reapplication requirements have been addressed within that report.

C. Duty to Provide Information. The Permittees must furnish to the Director and IDEQ, within the time specified in the request, any information that the Director or IDEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittees must also furnish to the Director or IDEQ, upon request, copies of records required to be kept by this Permit.

D. Other Information. When the Permittees become aware that it failed to submit any relevant facts in a Permit application, or that it submitted incorrect information in a Permit application or any report to the Director or IDEQ, the Permittees must promptly submit the omitted facts or corrected information.

E. Signatory Requirements. All applications, reports or information submitted to the Director and IDEQ must be signed and certified as follows.

1. All Permit applications must be signed as follows:
   a) For a corporation: by a responsible corporate officer.
   b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
   c) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the Permit and other information requested by the Director or the IDEQ must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a) The authorization is made in writing by a person described above;
   b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or

position having overall responsibility for environmental matters for the organization; and

c) The written authorization is submitted to the Director and IDEQ.

3. **Changes to Authorization.** If an authorization under Part VI.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part VI.E.2 must be submitted to the Director and IDEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. **Certification.** Any person signing a document under this Part must make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Availability of Reports. In accordance with 40 CFR Part 2, information submitted to EPA pursuant to this Permit may be claimed as confidential by the Permittees. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words “confidential business information” on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the Permittees. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. Inspection and Entry. The Permittees must allow the Director, IDEQ, or an authorized representative (including an authorized contractor acting as a representative of the Director), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the Permittees' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring Permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

H. Property Rights. The issuance of this Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations.

I. Transfers. This Permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the Permit to change the name of the Permittees and incorporate such other requirements as may be necessary under the Act. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory.)

J. State/Tribal Environmental Laws

1. Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittees from any responsibilities, liabilities, or penalties established pursuant to any applicable State/Tribal law or regulation under authority preserved by Section 510 of the Act**.**
2. No condition of this Permit releases the Permittees from any responsibility or requirements under other environmental statutes or regulations.

K. Oil and Hazardous Substance Liability Nothing in this Permit shall be constructed to preclude the institution of any legal action or relieve the Permittees from any responsibilities, liabilities, or penalties to which the Permittees is or may be subject under Section 311 of the CWA or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

L. Severability The provisions of this Permit are severable, and if any provision of this permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to the circumstances, and the remainder of this Permit shall not be affected thereby.

VII. Definitions and Acronyms

All definitions contained in Section 502 of the Act and 40 CFR Part 122 apply to this Permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided but, in the event of a conflict, the definition found in the statute or regulation takes precedence.

“Administrator” means the Administrator of the EPA, or an authorized representative.

“Animal facility” see “commercial animal facility.”

“Annual Report” means the periodic self –assessment submitted by the Permittee(s) to document incremental progress towards meeting the storm water management requirements and implementation schedules as required by this Permit. See Part IV.C.

"Best Management Practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. See 40 CFR § 122.2. BMP refers to operational activities, physical controls or educational measures that are applied to reduce the discharge of pollutants and minimize potential impacts upon receiving waters, and accordingly, refers to both structural and nonstructural practices that have direct impacts on the release, transport, or discharge of pollutants. See also "storm water control measure (SCM)."

"Bioretention" is the water quality and water quantity storm water management practice using the chemical, biological and physical properties of plants, microbes and soils for the removal of pollution from storm water runoff.

"Canopy Interception**"** is the interception of precipitation, by leaves and branches of trees and vegetation that does not reach the soil.

"CGP" and "Construction General Permit" means the current available version of EPA's *NPDES General Permit for Storm Water Discharges for Construction Activities in Idaho*, Permit No. IDR12-0000. EPA's CGP is posted on EPA's website at *www.epa.gov/npdes/stormwater/cgp*.

"Commercial Animal Facility" as used in this Permit, means a business that boards, breeds, or grooms animals including but not limited to dogs, cats, rabbits or horses.

"Common Plan of Development**"** is a contiguous construction project or projects where multiple separate and distinct construction activities may be taking place at different times on different schedules but under one plan. The "plan" is broadly defined as any announcement or piece of documentation or physical demarcation indicating construction activities may occur on a specific plot; included in this definition are most subdivisions and industrial parks.

"Construction activity" includes, but is not limited to, clearing, grading, excavation, and other site preparation work related to the construction of residential buildings and non-residential buildings, and heavy construction (e.g., highways, streets, bridges, tunnels, pipelines, transmission lines and industrial non-building structures).

"Control Measure" as used in this Permit, refers to any action, activity, Best Management Practice or other method used to prevent or reduce the discharge of pollutants in stormwater to waters of the United States.

"CWA" or "The Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq.

"Director" means the Environmental Protection Agency Regional Administrator, the EPA Director of the Office of Water and Watersheds, or an authorized representative.

"Discharge" when used without a qualifier, refers to "discharge of a pollutant" as defined at 40 CFR §122.2.

"Discharge of a pollutant" means (a) any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or (b) any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channelled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

"Discharge of Storm Water Associated with Construction Activity" as used in this Permit, refers to a discharge of pollutants in storm water runoff from areas where soil disturbing activities (*e.g.*, clearing, grading, or excavation), construction materials or equipment storage or maintenance (*e.g.*, fill piles, borrow areas, concrete truck washout, fueling) or other industrial storm water directly related to the construction process are located, and which are required to be managed under an NPDES permit. See the regulatory definitions of storm water discharge associated with large and small construction activity at 40 CFR §122.26(b)(14)(x) and 40 CFR §122.26(b)(15), respectively

"Discharge of Storm Water Associated with Industrial Activity" as used in this Permit, refers to the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant included in the regulatory definition of storm water discharge associated with industrial activity at 40 CFR §122.26(b)(14).

"Discharge-related Activities" include: activities which cause, contribute to, or result in storm water point source pollutant discharges and measures to control storm water discharges, including the siting, construction, and operation of best management practices to control, reduce or prevent storm water pollution.

"Disconnect" for the purposes of this permit, means the change from a direct discharge into receiving waters to one in which the discharged water flows across a vegetated surface, through a constructed water or wetlands feature, through a vegetated swale, or other attenuation or infiltration device before reaching the receiving water.

"Engineered Infiltration" is an underground device or system designed to accept storm water and slowly exfiltrates it into the underlying soil. This device or system is designed based on soil tests that define the infiltration rate.

"Erosion" means the process of carrying away soil particles by the action of water.

"Evaporation" means rainfall that is changed or converted into a vapor.

"Evapotranspiration" means the sum of evaporation and transpiration of water from the earth's surface to the atmosphere. It includes evaporation of liquid or solid water plus the transpiration from plants.

"Extended Filtration" is a structural storm water device which filters storm water runoff through a soil media and collects it in an underdrain which slowly releases it after the storm is over.

"EPA" means the Environmental Protection Agency Regional Administrator, the EPA Director of the Office of Water and Watersheds, or an authorized representative.

"Entity" means a governmental body, or a public or private organization.

"Existing Permanent Controls," in the context of this Permit, means post- construction or permanent storm water management controls designed to treat or control runoff on a permanent basis and that were installed prior to the effective date of this Permit.

"Facility or Activity" generally means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

"Fish Tissue Sampling" see "Methylmercury Fish Tissue Sampling"

"Green infrastructure" means runoff management approaches and technologies that utilize, enhance and/or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration and reuse.

"Hydromodification" means changes to the storm water runoff characteristics of a watershed caused by changes in land use.

"IDEQ" means the Idaho Department of Environmental Quality or its authorized representative.

"Illicit Connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit Discharge" is defined at 40 CFR §122.26(b)(2) and means any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES Permit for discharges from the MS4) and discharges resulting from fire fighting activities.

"Impaired Water**"** (or "Water Quality Impaired Water") for purposes of this Permit means any water body identified by the State of Idaho or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards. Impaired waters include both waters with approved or established Total Maximum Daily Loads (TMDLs), and those for which a TMDL has not yet been approved or established.

"Industrial Activity" as used in this Permit refers to the eleven categories of industrial activities included in the definition of discharges of "storm water associated with industrial activity" at 40 CFR §122.26(b)(14).

"Industrial Storm Water" as used in this Permit refers to storm water runoff associated with the definition of "discharges of storm water associated with industrial activity".

"Infiltration" is the process by which storm water penetrates into soil.

"Low Impact Development" or "LID" means storm water management and land development techniques, controls and strategies applied at the parcel and subdivision scale that emphasize conservation and use of on-site natural features integrated with engineered, small scale hydrologic controls to more closely mimic pre-development hydrologic functions.

"Major outfall" is defined in 40 CFR §122.26(b)(5) and in general, means a municipal storm sewer outfall that discharges from a single pipe with an inside diameter of 36 inches or more.

"MEP" or "maximum extent practicable," means the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by Section 402(p) of the Clean Water Act, 33 U.S.C §1342(p).

"Measurable Goal" means a quantitative measure of progress in implementing a component of a storm water management program.

"Methylmercury Fish Tissue Sampling" and "Methylmercury Fish Tissue Sampling Requirements" means the IDEQ-recommended cooperative data collection effort for the Lower Boise River Watershed. In particular, Methylmercury Fish Tissue Sampling requirements are otherwise specified in NPDES Permits # ID-002044-3 and ID-002398-1, as issued by EPA to the City of Boise and available online at http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/Current+ID1319

"Minimize" means to reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry or municipal practices.

"MS4" means "municipal separate storm sewer system," and is used to refer to either a Large, Medium, or Small Municipal Separate Storm Sewer System as defined in 40 CFR 122.26(b). The term, as used within the context of this Permit, refers to those portions of the municipal separate storm sewer systems within the corporate limits of the City of Boise and City of Garden City that are owned and/or operated by the Permittees, namely: Ada County Highway District, Boise State University, City of Boise, City of Garden City, Drainage District #3 and/or the Idaho Transportation Department District #3.

"Municipality" means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA.

"Municipal Separate Storm Sewer" is defined in 40 CFR §122.26(b) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to

State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.

"National Pollutant Discharge Elimination System" or "NPDES" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the CWA. The term includes an 'approved program.'

"New Permanent Controls," in the context of this Permit, means post- construction or permanent storm water management controls designed to treat or control runoff on a permanent basis that are installed after the effective date of this permit.

"Outfall" is defined at 40 CFR §122.26(b)(9) means a point source (see definition below) at the point where a municipal separate storm sewer discharges to waters of the United States, and does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.

"Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

"Permanent storm water management controls" see "post-construction storm water management controls."

"Permitting Authority" means the U.S. Environmental Protection Agency (EPA)

"Point Source" is defined at 40 CFR §122.2 and means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"Pollutant" is defined at 40 CFR §122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

"Pollutant(s) of concern" includes any pollutant identified by IDEQ as a cause of impairment of any water body that will receive a discharge from a MS4 authorized under this Permit. See Table II.C.

"Post- construction storm water management controls" or "permanent storm water management controls" means those controls designed to treat or control runoff on a permanent basis once construction is complete. See also "new permanent controls" and "existing permanent controls."

"QA/QC" means quality assurance/quality control.

"QAP" means Quality Assurance Plan.

"Rainfall and Rainwater Harvesting**"** is the collection, conveyance, and storage of rainwater. The scope, method, technologies, system complexity, purpose, and end uses vary from rain barrels for garden irrigation in urban areas, to large-scale collection of rainwater for all domestic uses.

"Redevelopment" for the purposes of this Permit, means the alteration, renewal or restoration of any developed land or property that results in land disturbance of 5,000 square feet or more, and that has one of the following characteristics: land that currently has an existing structure, such as buildings or houses; or land that is currently covered with an impervious surface, such as a parking lot or roof; or land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

"Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

"Repair of Public Streets, Roads and Parking Lots" means repair work on Permittee-owned or Permittee-managed streets and parking lots that involves land disturbance, including asphalt removal or regrading of 5,000 square feet or more. This definition excludes the following activities: pot hole and square cut patching; overlaying existing asphalt or concrete pacing with asphalt or concrete without expanding the area of coverage; shoulder grading; reshaping or regrading drainage ditches; crack or chip sealing; and vegetative maintenance.

"Runoff Reduction Techniques" means the collective assortment of storm water practices that reduce the volume of storm water from discharging off site.

"Storm Sewershed" means, for the purposes of this Permit, all the land area that is drained by a network of municipal separate storm sewer system conveyances to a single point of discharge into a water of the United States.

"Significant contributors of pollutants" means any discharge that causes or could cause or contribute to a violation of surface water quality standards.

"Small Construction Activity" – is defined at 40 CFR §122.26(b)(15) and incorporated here by reference. A small construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.
"Snow management" means the plowing, relocation and collection of snow.

"Soil amendments" are components added to in situ or native soils to increase the spacing between soil particles so that the soil can absorb and hold more moisture. The amendment of soils changes

various other physical, chemical and biological characteristics so that the soils become more effective in maintaining water quality.

"Source control" storm water management means practices that control storm water *before* pollutants have been introduced into storm water

"Storm event" or "measurable storm event" for the purposes of this Permit means a precipitation event that results in an actual discharge from the outfall and which follows the preceding measurable storm event by at least 48 hours (2 days).

"Storm water" and "storm water runoff" as used in this Permit means storm water runoff, snow melt runoff, and surface runoff and drainage, and is defined at 40 CFR §122.26(b)(13). "Storm water" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel or a constructed infiltration facility.

"Storm Water Control Measure" (SCM) or "storm water control device," means physical, structural, and/or managerial measures that, when used singly or in combination, reduce the downstream quality and quantity impacts of storm water. Also, SCM means a permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. This may include a schedule of activities, prohibition of practices, maintenance procedures, or other management practices. SCMs may include, but are not limited to, treatment requirements; operating procedures; practices to control plant site runoff, spillage, leaks, sludge, or waste disposal; or drainage from raw material storage. See "best management practices (BMPs)."

"Storm Water Facility" means a constructed component of a storm water drainage system, designed or constructed to perform a particular function or multiple functions. Storm water facilities include, but are not limited to, pipes, swales, ditches, culverts, street gutters, detention basins, retention basins, constructed wetlands, infiltration devices, catch basins, oil/water separators, sediment basins, and modular pavement.

"Storm Water Management Practice**"** or "Storm Water Management Control" means practices that manage storm water, including structural and vegetative components of a storm water system.

"Storm Water Management Project" means a project that takes into account the effects on the water quality of the receiving waters and whether a structural storm water control device can be retrofitted to control water quality.

"Storm Water Management Program (SWMP)" refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system. For the purposes of this Permit, the SWMP consists of the actions and activities conducted by the Permittees as required by this Permit and described in the Permittees' SWMP documentation. A "SWMP document" is the written summary describing the unique and/or cooperative means by which an individual Permittee or entity implements the specific storm water management controls Permittee within their jurisdiction.

"Storm Water Pollution Prevention Plan (SWPPP)" means a site specific plan designed to describe the control of soil, raw materials, or other substances to prevent pollutants in storm water runoff; a SWPPP is generally developed for a construction site, or an industrial facility. For the purposes of this permit, a SWPPP means a written document that identifies potential sources of pollution, describes practices to reduce pollutants in storm water discharges from the site, and identifies procedures or controls that the operator will implement to reduce impacts to water quality and comply with applicable Permit requirements.

"Structural flood control device" means a device designed and installed for the purpose of storm drainage during storm events.

"Subwatershed" for the purposes of this Permit means a smaller geographic section of a larger watershed unit with a drainage area between 2 to 15 square miles and whose boundaries include all the land area draining to a point where two second order streams combine to form a third order stream. A subwatershed may be located entirely within the same political jurisdiction.

"TMDL" means Total Maximum Daily Load, an analysis of pollutant loading to a body of water detailing the sum of the individual waste load allocations for point sources and load allocations for non-point sources and natural background. See 40 CFR §130.2.

"Treatment control" storm water management means practices that 'treat' storm water after pollutants have been incorporated into the storm water.

"Urban Agriculture" and "Urban Agricultural Activities" means the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities. For the purposes of this Permit, the term includes activities allowed and/or acknowledged by the Permittees through a local comprehensive plan ordinance, or other regulatory mechanism. For example, see: *Blueprint Boise* online at *http://www.cityofboise.org/BluePrintBoise/pdf/Blueprint%20Boise/0_Blueprint_All.pdf*, and/or *City of Boise Urban Agriculture ordinance amendment, ZOA11-00006.*

"Waters of the United States," as defined in 40 CFR 122.2, means:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

2. All interstate waters, including interstate "wetlands";

3. All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c. Which are used or could be used for industrial purposes by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States under this definition;

5. Tributaries of waters identified in paragraphs 1 through 4 of this definition;

6. The territorial sea; and

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds for steam electric generation stations per 40 CFR Part 423) which also meet the criteria of this definition are not waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

“Watershed” is defined as all the land area that is drained by a waterbody and its tributaries.

“Wetlands” means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

ATTACHMENT 11

Storm Drain Connection Fees

Fee Table

Use	Parcel Size	Fee
Residential - Single Family & Duplex	Less than 9,680 sq.ft.	$270 per lot
	Greater than 9,680 sq.ft.	$1,215 per acre
Residential - Multi-Family	Less than 9,720 sq.ft.	$405 per lot
	Greater than 9,720 sq.ft.	$1,815 per acre
Non-Residential	Less than 9,720 sq.ft.	$405 per lot
	Greater than 9,720 sq.ft.	$1,815 per acre (for first 10 acres) + $865 for each additional acre
Schools		$900 per acre or $205 per lot, whichever is greater

For further questions or inquiries, please contact Public Works Development Services Staff at (408) 535-3555.

ATTACHMENT 12

Sewer and Storm Water Fees

The charts below provide information on Sewer Fees and Storm Water Fees in the City of Alameda.

SEWER SERVICE FEE, CITY OF ALAMEDA

	FY2016	FY2017 % Increase 3.0%	FY2018 % Increase 3.0%	FY2019 % Increase 3.0%	FY2020 % Increase 3.0%
Single Family ($/month)	$23.93	$24.65	$25.39	$26.15	$26.93
Multi-Family ($/month)	$21.54	$22.19	$22.86	$23.55	$24.26
Commercial Fixed Charge ($/month) (includes first 730 cubic feet)	$21.54	$22.19	$22.86	$23.55	$24.26
Flow-Based Rate ($ per Hundred cubic feet)	$2.96	$3.05	$3.14	$3.23	$3.33

STORM WATER FEE, CITY OF ALAMEDA

The Fee is based on the amount of pollution that the City estimates enters the municipal storm water system as a result of the installation or maintenance of impervious surfaces.
2,000 square feet of impervious surface = 1 Impervious Surface Unit (ISU)

The Fee is calculated according to the following formula:
Number of Impervious Surface Units (ISU)
multiplied by
Fee per Equivalent Residential Unit (ERU)

	Storm Water Fee
Typical Single Family Residential Parcel A typical residential parcel has 5,000 square feet of surface area. 40 percent, or 2,000 square feet, is comprised of impervious surface (1 ISU).	**$56.15** (1 Equivalent Residential Unit fee)
Condominium (per unit) A typical condo unit has 600 square feet of impervious surface area (0.3 ISU).	**$16.85** (0.3 x 1 ERU)

Other parcels with Impervious Surfaces are subject to the Fee based upon stated formula Fee: Number of ISUs **multiplied by** Fee per ERU.

ATTACHMENT 13

News

Palo Alto proceeds with storm water management fee increase

By **JACQUELINE LEE** | jlee1@bayareanewsgroup.com
PUBLISHED: August 30, 2016 at 2:48 pm | UPDATED: August 31, 2016 at 7:56 am

PALO ALTO — Money from a proposed increase in storm water management fees would be spent more on operating costs than capital improvements, Palo Alto City Council decided on Monday, reversing a decision made earlier this year.

The council previously approved a resolution calling for a monthly fee of $13.65, up from $13.03.

The breakdown of the increased bill was going to be $6.62 as the base amount and $7.03 for capital improvements. Now, the allocation is reversed so that $7.48 is the base and $6.17 is for improvements.

City staff told council members that initial calculations were off because they were based on fiscal year 2016, rather than 2017, and more money is needed for operating costs.

A public protest hearing on the rate hike is set for Oct. 24. Property owners can file written opposition to the fee increase until then. If a majority does so, then the council has to terminate the fee increase process.

If there is no majority opposition, then the city will conduct a mail ballot election on the fee increase between Jan. 11 and Feb. 28.

If approved, the new fees would go into effect June 1 and generate about $6.9 million in revenue annually for the next 15 years.

In early 2015, the city identified about $37 million worth of capital improvements that are needed.

Property owners currently pay about $12.63 per month in storm drain bills.

Current fees will expire in June. If no action is taken to approve updated fees, then the rates will revert to $4.25, an amount property owners approved in 2005, which city leaders say is not enough to maintain operations.

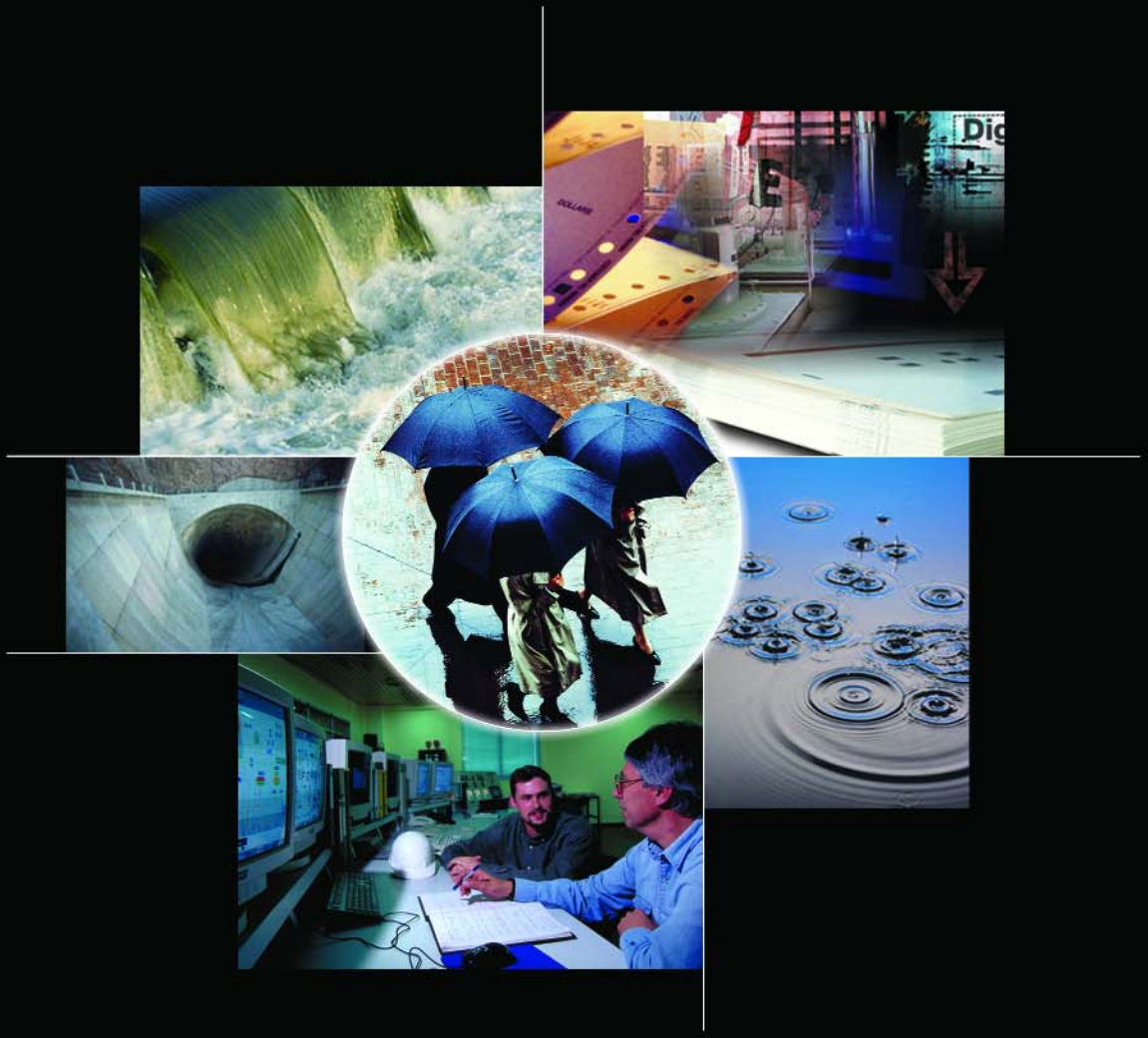
Email Jacqueline Lee at jlee1@bayareanewsgroup.com **or call her at 650-391-1334; follow her at** twitter.com/jleenews.

Jacqueline Lee Jacqueline Lee is a reporter covering Palo Alto for the Bay Area News Group. Lee is an LA native and alum of USC Annenberg.

Follow Jacqueline Lee @jleenews

ATTACHMENT 14

2005 STORMWATER UTILITY SURVEY



BLACK & VEATCH
building a world of difference™

ENERGY WATER INFORMATION GOVERNMENT

Black & Veatch is pleased to provide the results of its sixth national Stormwater Utility Survey, to help those involved in the stormwater industry stay well-informed across a range of issues. The survey results offer insight into the following topics:

- Organization/Administration
- Planning
- Operations
- Finance/Accounting
- Stormwater User Fees and Billing
- Quality Issues – Best Management Practices
- Public Information/Education
- Major Challenges Recently Faced
- Significant Events Affecting Utilities

These results can be used for numerous purposes, from performance management to financial planning to organization strengthening. At Black & Veatch, we understand the value of knowing what others are doing in the industry. For 90 years, meeting the needs of the utility industry has been at the core of our business. We are happy to discuss any questions you might have regarding this survey.

Profile of Respondents

- Responses were received from 99 utilities in 21 states and one Canadian province. All of these utilities are funded in whole or in part through user fees.
- Approximately 86 percent of the respondents serve a city, rather than a county or region.
- The population served by the respondents ranges from 1,400 (Atlantic Beach, FL) to 3.9 million people (Los Angeles, CA) and the area served varies from 3 to 1,500 square miles. Eighty-one percent indicate they are responsible for stormwater facilities only, while the balance report they are responsible for combined sanitary/stormwater facilities. Approximately 88 percent indicate that they use their own staff to provide a majority of operation and maintenance services.
- For those utilities that base charges on gross property area, equivalent residential units ranged from 1,600 square feet total area to 11,000 square feet, with a mean of 6,964 square feet. For those utilities that base charges on impervious area, impervious areas per equivalent residential unit ranged from 1,500 square feet to 10,000 square feet, with a mean of 2,647 square feet.

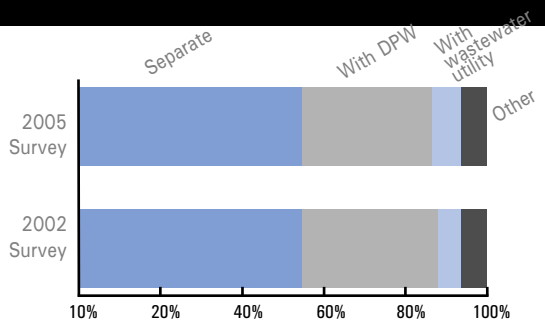
What's New

Feedback from participants prompted us to add a new question to the 2004-2005 version of the Stormwater Utility Survey. In recent years, a number of stormwater treatment systems have become commercially available. Fifty-six percent of respondents have installed at least one of these devices with the most popular being Stormceptor, StormFilter, and CDS Separator. Thirty-six percent have had a favorable experience with these devices in terms of treatment efficiency and ease of maintenance, while 41 percent are still in the evaluation process.

Organization / Administration

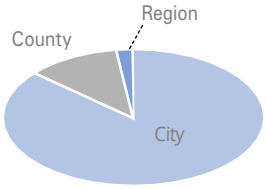
How is your operation organized?

55% Separate utility
32% Combined with Department of Public Works
7% Combined with wastewater utility
6% Other



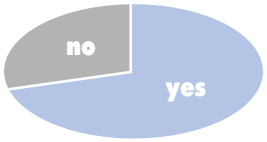
What area does your utility serve?

86% Within city limits
12% County
2% Region



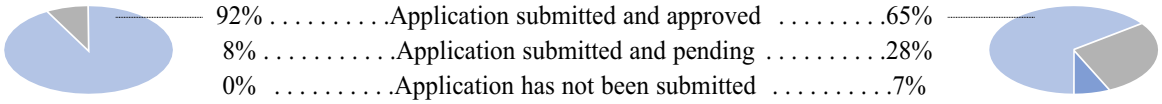
Does your state have specific statutes that govern the formation of stormwater utility and user fee financing?

71% Yes
29% No



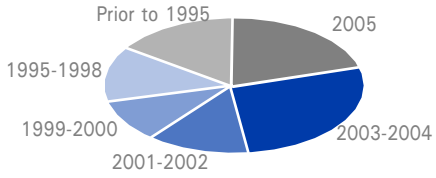
Planning

What is the status of your NPDES permit?



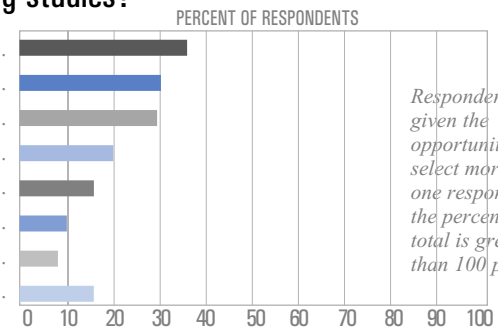
When was your most recent stormwater plan or stormwater facilities plan?

21% 2005
27% 2003–2004
13% 2001–2002
10% 1999–2000
13% 1995–1998
16% Prior to 1995



What stormwater computer models do you use for planning studies?

36% HEC-2
30% XP-SWMM
29% HEC-1
20% TR-55
16% EPA SWMM
10% HEC-RAS
7% HEC-HMS
15% Other

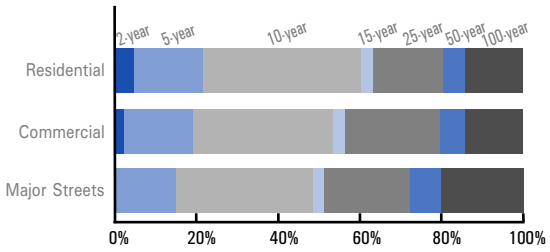


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Planning (continued)

What return periods do you use to design your major stormwater structures?

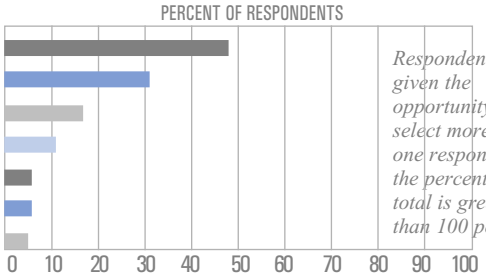
	Residential	Commercial	Major Streets
2-year	3%	1%	0%
5-year	18%	17%	14%
10-year	39%	35%	34%
15-year	3%	3%	3%
25-year	17%	23%	21%
50-year	6%	7%	8%
100-year	14%	14%	20%



Several respondents provided a range of return period.
The percentages above represent the smallest return period provided.

Which performance indicators do you consider most important in measuring improvement in stormwater management success?

47%	Flood control
31%	Monitoring pollutants
17%	Customer complaints/satisfaction
11%	Cost control measures
6%	Erosion control
6%	Maintenance
5%	Habitat

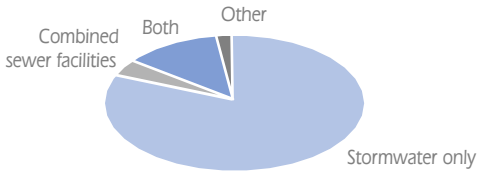


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Operations

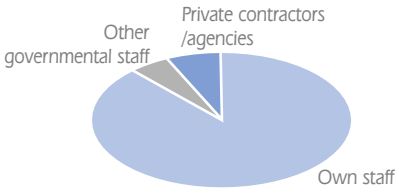
What is your utility responsible for?

81%	Stormwater facilities only
4%	Combined sewer (sanitary/stormwater) facilities
13%	Both
2%	Other



Who provides the majority of your O&M services?

88%	Own Staff
5%	Other Governmental Staff
7%	Private contractors/agencies

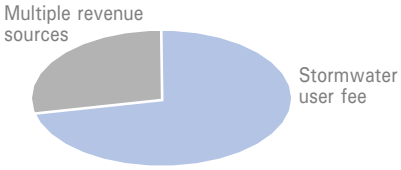


Finance/Accounting

What are your major (at least 90 percent of total income) revenue sources?

(Excludes 7 utilities that reported no single major source)

72% Stormwater user fee
28% Multiple revenue sources



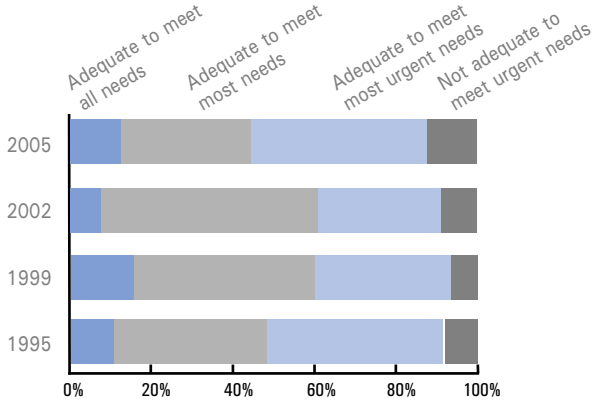
How adequate is available funding?

13% Adequate to meet all needs
2002 = 8% • 1999 = 16% • 1995 = 11%

32% Adequate to meet all needs
2002 =53% • 1999 = 44% • 1995 = 38%

43% Adequate to meet most urgent needs
2002 = 30% • 1999 = 34% • 1995 = 44%

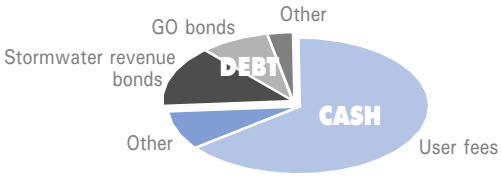
12% Not adequate to meet urgent needs
2002 = 9% • 1999 = 6% • 1995 = 7%



How is the majority of capital improvement needs financed?

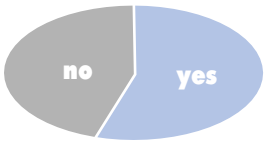
74% Cash financed
- 65% From user fees
- 0% From ad valorem taxes
- 9% Other

26% Debt financed
- 14% Stormwater revenue bonds
- 9% General obligation bonds
- 0% Combined bonds
- 3% Other



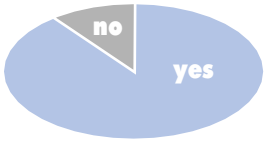
Does your accounting system permit cost tracking by operating activity (e.g., inlet cleaning)?

55% Yes
45% No



Does your accounting system identify user fee revenues by customer class (e.g., residential)?

89% Yes
11% No

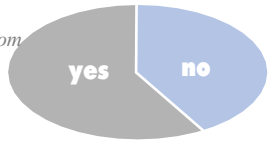


Stormwater User Fees and Billing

Q Were your rates revised in the last 12 months?

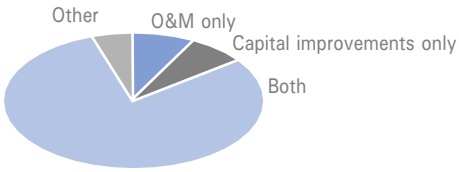
41% No
59% Yes

Increases ranged from 1% minimum to 117% maximum



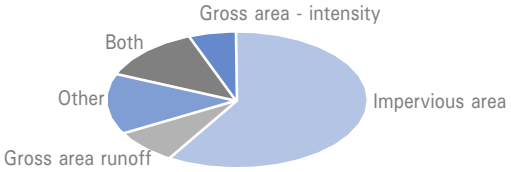
Q What are your user fees designed to pay for?

8% Operation and maintenance (O&M) expenses only
7% Capital improvements only
80% Both O&M expenses and capital improvements
5% Other



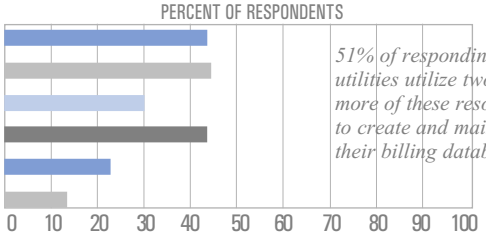
Q What is the basis for your user fees?

59% Impervious area
8% Gross area with intensity of development factor
14% Both impervious and gross areas
13% Other (e.g., number of rooms, water use, flat fee)
6% Gross area with runoff factor

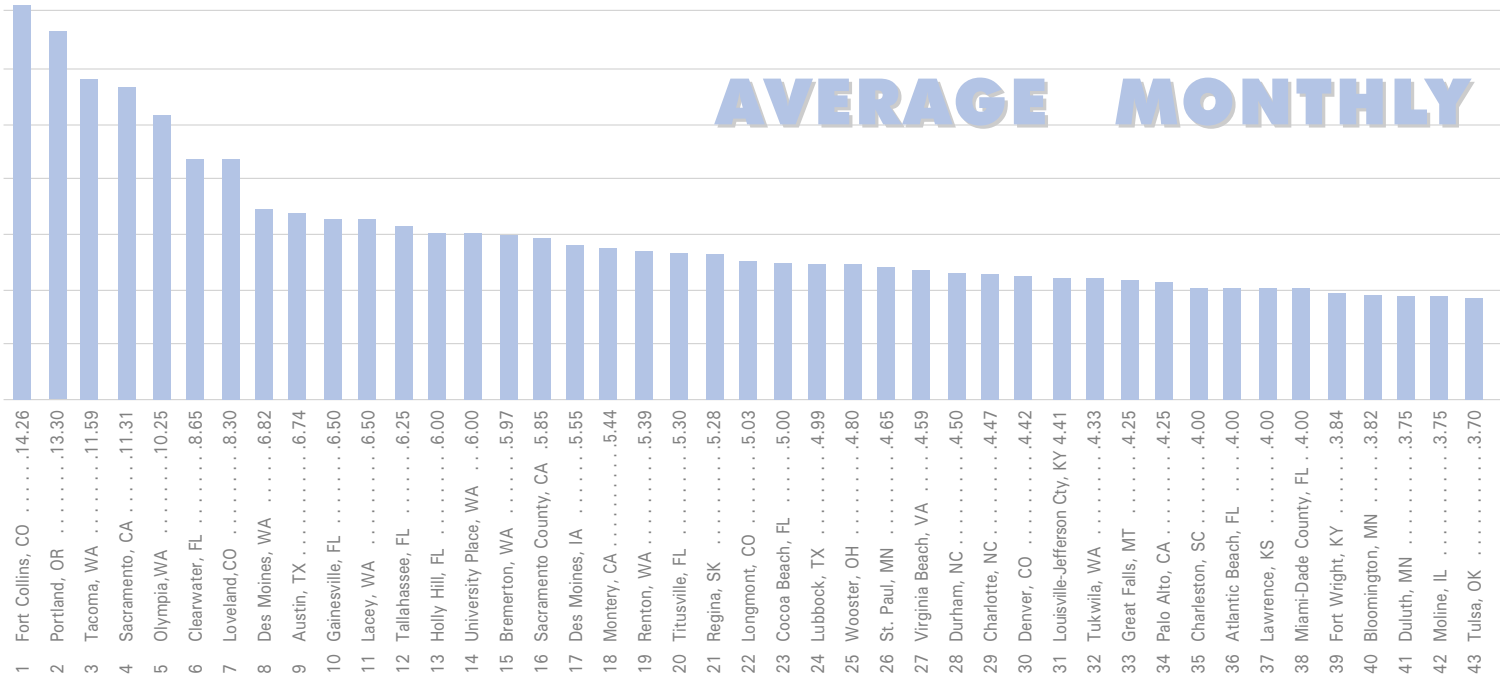


Q If user fees are area-based, what principal resources were employed to create and maintain the customer database used to compute charges?

42% Property tax assessor records
43% Aerial photographs
29% On-site property measurement
42% Geographic Information System (GIS)
22% Planimetric map take-offs
13% Other (e.g., building permits, site plans)



51% of responding utilities utilize two or more of these resources to create and maintain their billing database



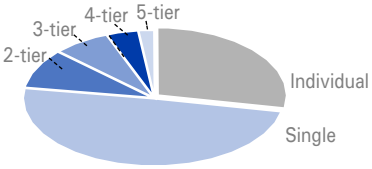
Q Are your stormwater charges based on individual or class average characteristics?

Residential

27% Individual parcel

73% Class average as:

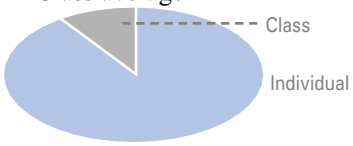
- 48% Single tier
- 9% 2-Tier rate
- 7% 3-Tier rate
- 4% 4-Tier rate
- 2% 5-Tier rate



Non-Residential

90% Individual parcel

10% Class average



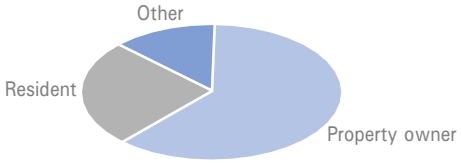
3% of respondents who answered class average did not provide the number of rate tiers.

Q Who is responsible for the payment of user fees?

62% Property owner

25% Resident

13% Other (e.g., water or other utility bill recipient)



Q How frequently do you bill?

56% Monthly

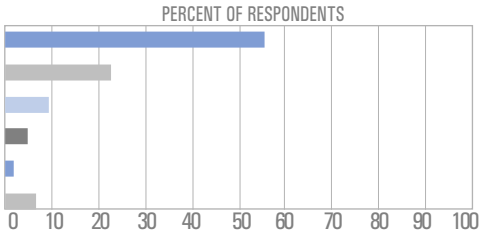
22% Annually

9% Bi-monthly

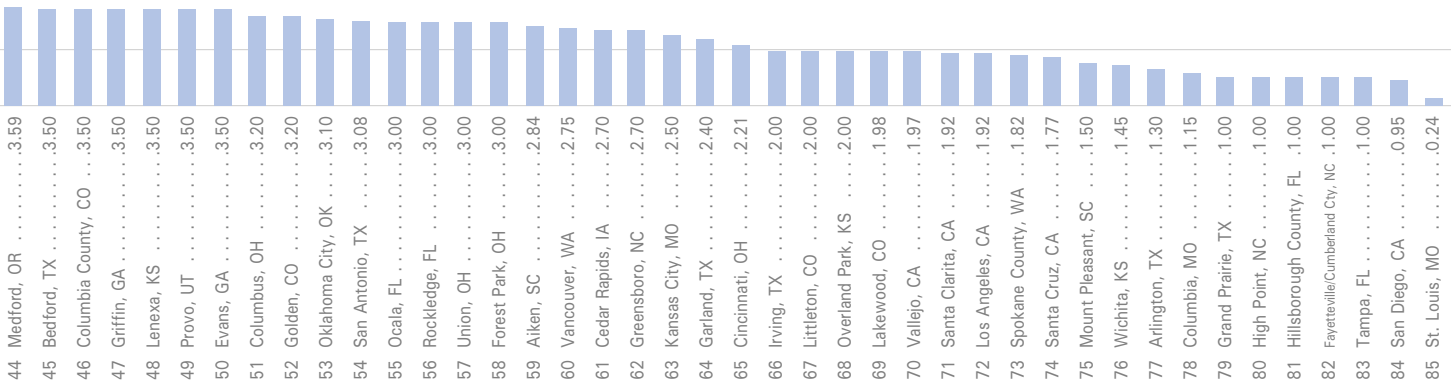
5% Quarterly

2% Semi-annually

6% Other

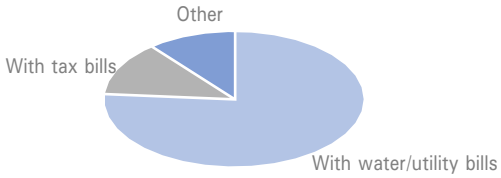


RESIDENTIAL CHARGE



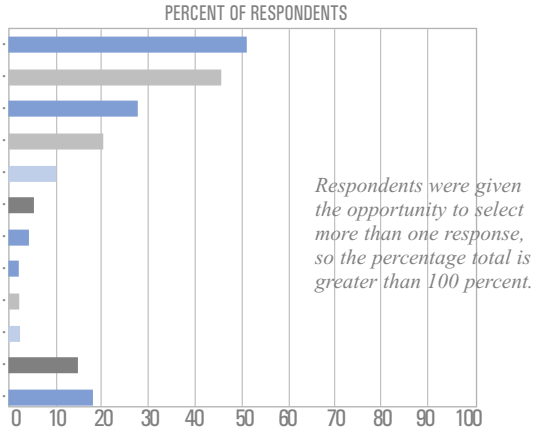
Stormwater User Fees and Billing (continued)

How are your user fees billed?



76% With water or other utility bills
13% With tax bills
11% Other

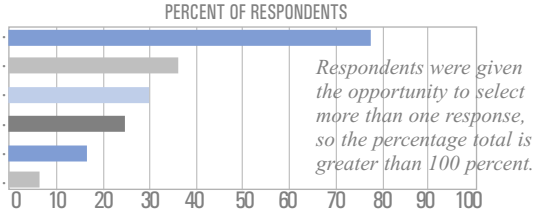
What types of properties are exempt from user fees?



51% Streets/highways
46% Undeveloped land
27% Rail rights-of-way
20% Public parks
10% Government
5% School districts
4% Churches
2% Airports
2% Colleges/universities
2% Water front
14% None
17% Other

Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

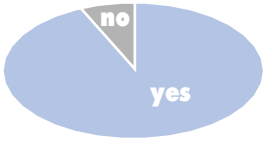
What customer classifications are recognized in your stormwater fee structure?



77% Residential
36% Commercial
30% Combined commercial/industrial
25% Other
17% Industrial
7% No designation

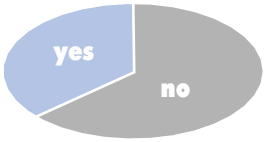
Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Are rates the same for all service areas or watersheds?



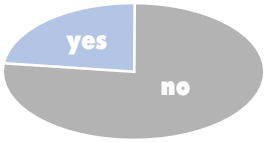
93% Yes
7% No

Are your user fees for single family dwellings the same as for individual multiple residential units, such as apartments and condominiums?



64% No
36% Yes

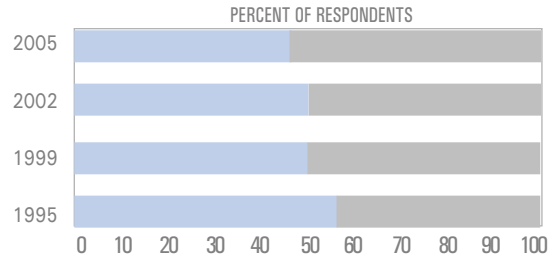
Are one-time impact/capital recovery fees applied to new stormwater utility customers or new development?



77% No
23% Yes

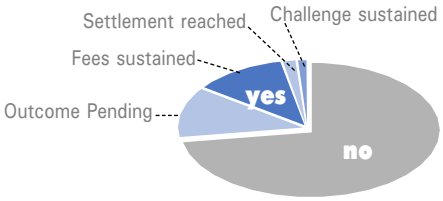
Are credits provided for private detention/retention facilities?

46% Yes
2002 = 53% • 1999 = 50% • 1995 = 57%
54% No



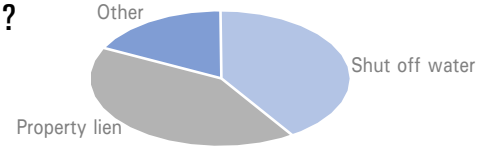
Have your user fees faced a legal challenge?

72% No
28% Yes
12% Outcome pending
12% Fees sustained
2% Settlement reached
1% Challenge sustained (2 later remedied by legislation)



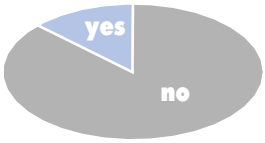
On what basis is payment of your user fees enforced?

41% Lien on property
42% Shut off water
18% Other



Is a significant share of your utility costs attributable to stormwater from outside your service area?

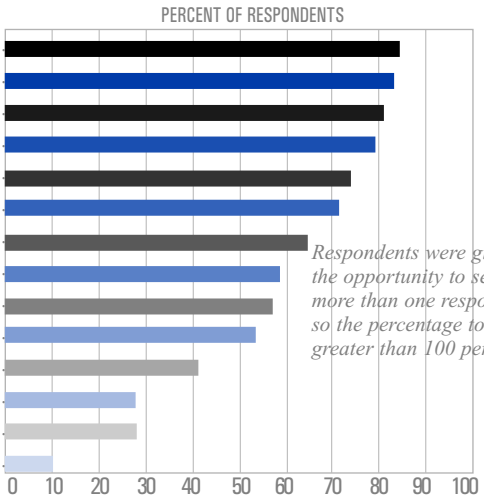
87% No
13% Yes



Quality Issues — Best Management Practices

Which programs and practices are being used to protect or improve water quality?

84% Public education
83% Erosion/sediment controls
81% Street sweeping
79% Detention/retention basins
73% Inlet stenciling
71% Illegal discharge detection
64% Stormwater quality monitoring
59% Public volunteer involvement
58% Residential toxins collection
53% Commercial/industrial regulation
41% Constructed wetlands
28% Lawn herbicide/pesticide control
28% Treatment
10% Other

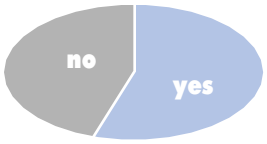


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Quality Issues Best Management Practice (continued)

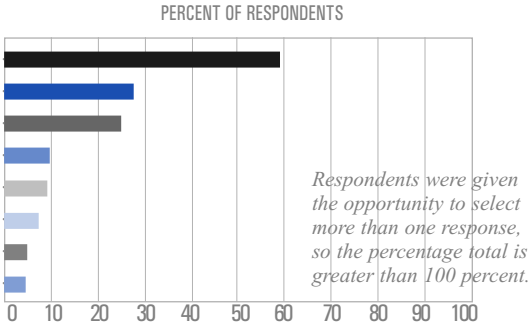
Q Have you installed any stormwater treatment systems in your stormwater conveyance system?

55% Yes
45% No



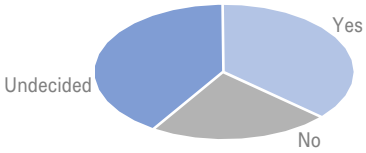
Devices installed:

59% Stormceptor
28% CDS Separator
24% StormFilter
9% Downstream Defend
9% Vortechnics
7% Bay Saver
4% Abtech
4% SunTree Technologies



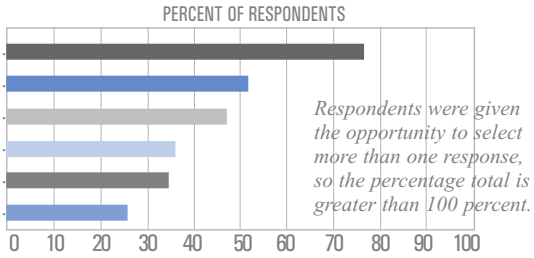
Have these devices met your expectations?

36% Yes
23% No
41% Undecided



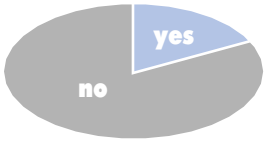
Q What contaminants are your greatest concern?

76% Sediments
51% Nutrients
47% Oil and grease
35% Heavy metals
34% Pesticides
25% Other



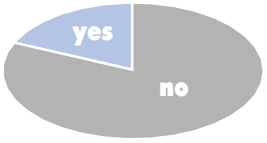
Q Are quality-based user fee credits or other incentives provided to encourage customers to control or reduce stormwater pollution?

18% Yes
82% No



Q Are your user fees specifically designed to provide for the separate recognition and equitable recovery of costs associated with stormwater quality management and quantity(runoff) management, respectively?

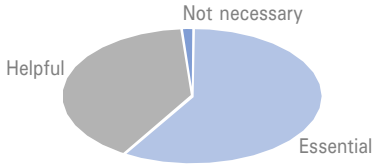
81% No
19% Yes



Public Information/Education

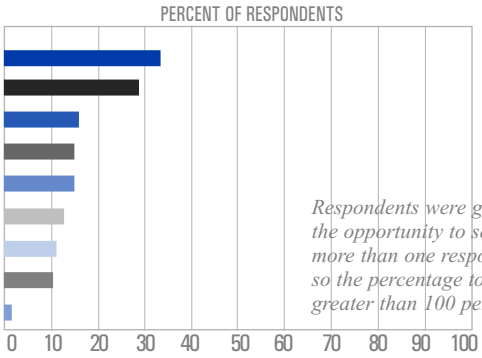
How important is an organized public information/education effort to the continuing success of a user fee funded stormwater utility?

59% Essential
40% Helpful
1% Not necessary



What means have you found to be the most effective in educating the public about utility services, program needs and financing, and citizen responsibilities?

33% Bill inserts
29% Public hearings/presentations
16% Internet
15% Brochures/flyers/newsletters
15% Newspaper
12% Television
11% Public schools
10% Speakers bureau
1% Direct mail



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Major Challenges Recently Faced

Financial, rate, and billing related issues ..... 19 utilities
(e.g., financing growth, capital replacements, NPDES and other environmental mandates; rate increases, rate equitability, rate challenges; and billing database updating or conversion to GIS)

Weather and flooding issues ..... 10 utilities
(e.g., high amounts of rainfall, standing water, West Nile concerns, localized flooding)

Erosion control ..... 8 utilities
(e.g., run-off, erosion problems)

Regulatory and quality control compliance ..... 8 utilities
(e.g., illicit discharges, quality monitoring, and difficulties of complying with more stringent state and federal quality mandates related to Endangered Species Act, TMDLs, et al.)

Infrastructure planning issues ..... 7 utilities
(e.g., need for integrated flood, quality and environmental planning; remedy of specific infiltration/inflow or local flooding problems; and system-wide flood control master planning)

Jurisdictional issues ..... 3 utilities
(e.g., incorporation of added cities into service area and co-permittee coordination)

Public education ..... 2 utilities
(e.g., need for increased education regarding new programs or rate increases)

Significant Events Affecting Utilities in Past Two Years

NPDES compliance ..... 21 utilities

CIP related (funding, projects started/completed) ..... 14 utilities

User fee related (increases, lack of increases) ..... 14 utilities

Weather related (heavy rains, storms, drought) ..... 8 utilities

Organization/administration/staffing changes ..... 7 utilities

Public education/awareness ..... 4 utilities

Urban growth/decline in service area ..... 4 utilities

Legal challenges ..... 2 utilities

Some respondents listed the same events as positive, negative, or both (e.g., heavy rains or flooding brought both damage and increased public awareness of needs).

Stormwater Management

From run-off to potential revenue stream, stormwater management is uniquely challenging. It is often not source-specific, not metered or monitored closely within the community, and not tied to customers' daily decisions. Black & Veatch's Enterprise Management Solutions team assists utilities nationwide in stormwater management issues to help provide stable funding for operations as well as capital projects.

ABOUT ENTERPRISE MANAGEMENT SOLUTIONS

Black & Veatch is pleased to provide this survey as an industry service. For 90 years, meeting the needs of utilities nationwide has been at the core of our business. We understand the value of knowing how others are addressing the industry's complex issues. From organization effectiveness to financial structuring to risk management, it helps to know the industry's trusted business partner. Black & Veatch brings it all together.

BLACK & VEATCH
building a world of difference™

ENERGY WATER INFORMATION GOVERNMENT

For custom strategies, proven processes and high-value results, contact:
Anna White
Black & Veatch • 11401 Lamar Avenue • Overland Park, KS 66211 USA
Tel: 913-458-4322
Stormwater@bv.com

04/19/05

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

State Water Resources Control Board

To: STORM WATER DISCHARGER

SUBJECT: CHECKLIST FOR SUBMITTING A NOTICE OF INTENT

In order for the State Water Resources Control Board to expeditiously process your Notice of Intent (NOI), the following items must be submitted to either of the addresses indicated below:

1._____ NOI (please keep a copy for your files) with all applicable sections completed and original signature of the facility operator;

2._____ Check made out to the "State Water Resources Control Board" with the appropriate fee. The total annual fee is $**1632.00.**

3. _____ Site Map of the facility (see NOI instructions). DO NOT SEND BLUEPRINTS

U.S. Postal Service Address

State Water Resources Control Board
Division of Water Quality
Attn: Storm Water Section
P.O. Box 1977
Sacramento, CA 95812-1977

Overnight Mailing Address

State Water Resources Control Board
Division Of Water Quality
Attn: Storm Water, 15th Floor
1001 I Street
Sacramento, CA 95814

NOIs are processed in the order they are received. A NOI receipt letter will be mailed to the facility operator within approximately two weeks. Incomplete NOI submittals will be returned to the facility operator within the same timeframe and will specify the reason(s) for return. If you need a receipt letter by a specific date (for example, to provide to a local agency), we advise that you submit your NOI thirty (30) days prior to the date the receipt letter is needed.

Please do not call us to verify your NOI status. A copy of your NOI receipt letter will be available on our web page within twenty-four (24) hours of processing. Go to https://smarts.waterboards.ca.gov and click on View SW data. If you have any questions regarding this matter, please contact us at 1-866-563-3107 or stormwater@waterboards.ca.gov

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FOR

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
WATER QUALITY ORDER NO. 97-03-DWQ
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT NO. CAS000001 (GENERAL PERMIT)

WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES
EXCLUDING CONSTRUCTION ACTIVITIES

FACT SHEET
FOR

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
WATER QUALITY ORDER NO. 97-03-DWQ
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT NO. CAS000001 (GENERAL PERMIT)

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FOR
DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES
EXCLUDING CONSTRUCTION ACTIVITIES

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) that establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. On November 16, 1990, the U.S. Environmental Protection Agency (U.S. EPA) published final regulations that establish application requirements for storm water permits. The regulations require that storm water associated with industrial activity (storm water) that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit.

U.S. EPA developed a four-tier permit issuance strategy for storm water discharges associated with industrial activity as follows:

Tier I, Baseline Permitting--One or more general permits will be developed to initially cover the majority of storm water discharges associated with industrial activity.

Tier II, Watershed Permitting--Facilities within watersheds shown to be adversely impacted by storm water discharges associated with industrial activity will be targeted for individual or watershed-specific general permits.

Tier III, Industry-Specific Permitting--Specific industry categories will be targeted for individual or Industry-specific general permits.

Tier IV, Facility-Specific Permitting--A variety of factors will be used to target specific facilities for individual permits.

The regulations allow authorized states to issue general permits or individual permits to regulate storm water discharges.

Consistent with Tier I, Baseline Permitting, of the U.S. EPA permitting strategy, the State Water Board issued a statewide General Permit on November 19, 1991 that applied to all storm water discharges requiring a permit except construction activity. The monitoring requirements of this General Permit were amended September 17, 1992. A separate statewide general permit has been issued for construction activity.

To obtain authorization for continued and future storm water discharge under this General Permit, each facility operator must submit a Notice of Intent (NOI). This approach is consistent with the four-tier permitting strategy described in Federal regulations, i.e., Tier 1, Baseline Permitting. Tier 1, Baseline Permitting, enables the State to begin reducing pollutants in industrial storm water in the most efficient manner possible.

This General Permit generally requires facility operators to:

1. Eliminate unauthorized non-storm water discharges;
2. Develop and implement a storm water pollution prevention plan (SWPPP); and
3. Perform monitoring of storm water discharges and authorized non-storm water discharges.

TYPES OF STORM WATER DISCHARGES COVERED BY THIS GENERAL PERMIT

This General Permit is intended to cover all new or existing storm water discharges and authorized non-storm water discharges from facilities required by Federal regulations to obtain a permit including those (1) facilities previously covered by the San Francisco Bay Regional Water Quality Control Board Order No. 92-011 (as amended by Order No. 92-116), (2) facilities designated by the Regional Water Quality Control Boards (Regional Water Boards), (3) facilities whose operators seek coverage under this General Permit, (4) and facilities required by future U.S. EPA storm water regulations.

The General Permit is intended to cover all facilities described in Attachment 1, whether the facility is primary or is auxiliary to the facility operator's function. For example, although a school district's primary function is education, a facility that it operates for vehicle maintenance of school buses is a transportation facility that is covered by this General Permit.

The definition of "storm water associated with industrial activity" is provided in Attachment 4, Definition 9, of this General Permit. Facilities that discharge storm water associated with industrial activity requiring a General Permit are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14) (Federal Register, Volume 55 on

Pages 48065-66) and in Attachment 1 of this General Permit. The facilities can be publicly or privately owned. General descriptions of these categories are:

1. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N);

2. Manufacturing facilities;

3. Mining/oil and gas facilities;

4. Hazardous waste treatment, storage, or disposal facilities;

5. Landfills, land application sites, and open dumps that receive industrial waste;

6. Recycling facilities such as metal scrap yards, battery reclaimers, salvage yards, automobile yards;

7. Steam electric generating facilities;

8. Transportation facilities that conduct any type of vehicle maintenance such as fueling, cleaning, repairing, etc.;

9. Sewage treatment plants;

10. Construction activity (covered by a separate general permit); and

11. Certain facilities (often referred to as "light industry") where industrial materials, equipment, or activities are exposed to storm water.

For the most part, these facilities are identified in the Federal regulations by a Standard Industrial Classification (SIC).

Category 1 Dischargers

The following categories of facilities currently have storm water effluent limitation guidelines for at least one of their subcategories. They are cement manufacturing (40 CFR Part 411); feedlots (40 CFR Part 412); fertilizer manufacturing (40 CFR Part 418); petroleum refining (40 CFR Part 419); phosphate manufacturing (40 CFR Part 422); steam electric power generation (40 CFR Part 423); coal mining (40 CFR Part 434); mineral mining and processing (40 CFR Part 436); ore mining and dressing (40 CFR Part 440); and asphalt emulsion (40 CFR Part 443). A facility operator whose facility falls into one of these general categories should examine the effluent guidelines to determine if the facility is categorized in one of the subcategories that have storm water effluent guidelines. If

a facility is classified as one of those subcategories, that facility is subject to the standards listed in the CFR for that category and is subject to this General Permit. This General Permit contains additional requirements (see Section B.6.) for facilities with storm water effluent limitations guidelines.

Category 5 Dischargers

Inactive or closed landfills, land application sites, and open dumps that have received industrial wastes (Category 5) may be subject to this General Permit unless the storm water discharges from the sites are already regulated by an NPDES permit issued by the appropriate Regional Water Board. Facility operators of closed landfills that are regulated by waste discharge requirements (WDRs) may be required to comply with this General Permit. In some cases, it may be appropriate for closed landfills to be covered by the State Water Board's General Permit during closure activities. The Construction Activities General Permit should cover new landfill construction. Facility operators should contact their Regional Water Board to determine the appropriate permit coverage.

Category 10 Dischargers

Facility operators of Category 10 (light industry) facilities are not subject to this General Permit if they can certify that the following minimum conditions at their facilities are met:

1. All prohibited non-storm water discharges have been eliminated or otherwise permitted.

2. All areas of past exposure have been inspected and cleaned, as appropriate.

3. All materials related to industrial activity (including waste materials) are not exposed to storm water or authorized non-storm water discharges.

4. All industrial activities and industrial equipment are not exposed to storm water or authorized non-storm water discharges.

5. There is no exposure of materials associated with industrial activity through other direct or indirect pathways such as particulates from stacks and exhaust systems.

6. There is periodic re-evaluation of the facility to ensure Conditions 1, 3, 4, and 5 are continuously met.

Currently, facility operators that can certify that the above conditions are met are not required to notify the State Water

Board or Regional Water Board. These facility operators are advised to retain such certification documentation on site.

The Ninth Circuit Court of Appeals invalidated the exemption granted by U.S. EPA for storm water discharges from facilities in Category 11 that do not have exposure and remanded the regulation to U.S. EPA for further action. The State Water Board, at this time, is not requiring storm water discharges from facilities in Category 11 that do not have exposure to be covered by this General Permit. Instead, the State Water Board will await future U.S. EPA or court action clarifying the types of storm water discharges that must be permitted. If necessary, the State Water Board will reopen the General Permit to accommodate such a clarification.

Section 1068 of the Intermodal Surface Transportation Act of 1991 exempts municipal agencies serving populations of less than 100,000 from Phase I permit requirements for most facilities they operate (uncontrolled sanitary landfills, power plants, and airports are still required to be permitted in Phase I). Phase II of the Permit Program scheduled to begin August 7, 2001 will cover the facilities that are exempt from Phase I permit requirements.

TYPES OF DISCHARGES NOT COVERED BY THIS GENERAL PERMIT

1. CONSTRUCTION ACTIVITY: Discharges from construction activity of five acres or more, including clearing, grading, and excavation. A separate general permit was adopted on August 20, 1992 for this industrial category.

2. FACILITIES WHICH HAVE NPDES PERMITS CONTAINING STORM WATER PROVISIONS: Some storm water discharges may be regulated by other individual or general NPDES permits issued by the State Water Board or the Regional Water Boards. This General Permit shall not regulate these discharges. When the individual or general NPDES permits for such discharges expire, the State Water Board or Regional Water Board may authorize coverage under this General Permit or another general NPDES permit, or may issue a new individual NPDES permit consistent with the Federal and State storm water regulations. Interested parties may petition the State Water Board or appropriate Regional Water Board to issue individual or General NPDES Permits. General Permits may be issued for a particular industrial group or watershed area.

3. FACILITIES DETERMINED INELIGIBLE BY REGIONAL WATER BOARDS: Regional Water Boards may determine that discharges from a facility or groups of facilities, otherwise eligible for coverage under this General Permit, have potential water quality impacts that may not be appropriately addressed by

this General Permit. In such cases, a Regional Water Board may require such discharges to be covered by an individual or general NPDES permit. Interested persons may petition the appropriate Regional Water Board to issue individual NPDES permits. The applicability of this General Permit to such discharges will be terminated upon adoption of an individual NPDES permit or a different general NPDES permit.

4. FACILITIES WHICH DO NOT DISCHARGE STORM WATER TO WATERS OF THE UNITED STATES: The discharges from the following facilities are not required to be permitted:

   a. FACILITIES THAT DISCHARGE STORM WATER TO MUNICIPAL SANITARY SEWER SYSTEMS: Facilities that discharge storm water to municipal sanitary sewer systems or combined sewer systems are not required by Federal regulations to be covered by an NPDES storm water permit or to submit an NOI to comply with this General Permit. (It should be noted that many municipalities have sewer use ordinances that prohibit storm drain connections to their sanitary sewers.)

   b. FACILITIES THAT DO NOT DISCHARGE STORM WATER TO SURFACE WATERS OR SEPARATE STORM SEWERS: Storm water that is captured and treated and/or disposed of with the facility's NPDES permitted process wastewater and storm water that is disposed of to evaporation ponds, percolation ponds, or combined sewer systems are not required to obtain a storm water permit. To avoid liability, the facility operator should be certain that no discharge of storm water to surface waters would occur under any circumstances.

5. MOST SILVICULTURAL ACTIVITIES: Storm water discharges from most silvicultural activities such as thinning, harvesting operations, surface drainage, or road construction and maintenance are exempt from this permit. Log sorting or log storage facilities that fall within SIC 2411 are required to be permitted.

6. MINING AND OIL AND GAS FACILITIES: Oil and gas facilities that have not released storm water resulting in a discharge of a reportable quantity (RQ) for which notification is or was required pursuant to 40 CFR Parts 110, 117, and 302 at any time after November 19, 1987 are not required to be permitted unless the industrial storm water discharge contributed to a violation of a water quality standard. Mining facilities that discharge storm water that does not come into contact with any overburden, raw materials, intermediate product, finished product, by-product, or waste product located at the facility are not required to be permitted. These facilities must be permitted if they have a new release of storm water resulting in a discharge of an RQ.

7. FACILITIES ON INDIAN LANDS: the U.S. EPA will regulate Discharges from facilities on Indian lands.

NOTIFICATION REQUIREMENTS

Storm water discharges from facilities described in the section titled "Types of Storm Water Discharges Covered by This General Permit" must be covered by an NPDES permit. An NOI must be submitted by the facility operator for each individual facility to obtain coverage. Certification of the NOI signifies that the facility operator intends to comply with the provisions of the General Permit. Facility operators who have filed NOIs for the State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-011 (as amended by Order No. 92-116) will be sent an abbreviated NOI soon after adopting this General Permit that must be completed and returned within 45 days of receipt. Where operations have discontinued and significant materials remain on site (such as at closed landfills), the landowner may be responsible for filing an NOI and complying with this General Permit. A landowner may also file an NOI for a facility if the landowner, rather than the facility operator(s), is responsible for compliance with this General Permit.

A facility operator that does not submit an NOI for a facility must submit an application for an individual NPDES permit. U.S. EPA's regulations [40 CFR 122.21 (a)] exclude facility operators covered by a general permit from requirements to submit an individual permit application unless required by the Regional Water Board. The NOI requirements of this General Permit are intended to establish a mechanism which can be used to establish a clear accounting of the number of facility operators complying with the General Permit, their identities, the nature of operations at the facilities, and location.

All facility operators filing an NOI after the adoption of this General Permit must comply with this General Permit. Existing facility operators who have filed NOIs prior to the adoption of this General Permit shall continue to complete the requirements of the previous General Permit through June 30, 1997 including submitting annual reports to the Regional Water Boards by July 1, 1997. Group Leaders are required to submit a 1996-97 Group Evaluation Report by August 1, 1997.

DESCRIPTION OF GENERAL PERMIT CONDITIONS

Prohibitions

This General Permit authorizes storm water and authorized non-storm water discharges from facilities that are required to be covered by a storm water permit. This General Permit prohibits discharges of material other than storm water (non-storm water discharges) that are not authorized by the General Permit and discharges containing hazardous substances in storm water in excess of reportable quantities established at 40 CFR 117.3 and 40 CFR 302.4. Authorized non-storm water discharges are addressed in the Special Conditions of the General Permit.

Effluent Limitations

NPDES Permits for storm water discharges must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards.

U.S. EPA regulations (40 CFR Subchapter N) establish effluent limitation guidelines for storm water discharges from facilities in ten industrial categories. For these facilities, compliance with the effluent limitation guidelines constitutes compliance with BAT and BCT for the specified pollutants and must be met to comply with this General Permit.

For storm water discharges from facilities not among the ten industrial categories listed in 40 CFR Subchapter N, it is not feasible at this time to establish numeric effluent limitations. The reasons why establishment of numeric effluent limitations is not feasible are discussed in detail in State Water Board Orders No. WQ 91-03 and WQ 91-04. Therefore, this General Permit allows the facility operator to implement best management practices (BMPs) to comply with the requirements of this General Permit. This approach is consistent with the U.S. EPA's August 1, 1996 "Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits".

Receiving Water Limitations

Storm water discharges shall not cause or contribute to a violation of an applicable water quality standard. The General Permit requires facility operators to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges through the development and implementation of BMPs which constitutes compliance with BAT and BCT and, in most cases, compliance with water quality standards. If receiving water quality standards are exceeded, facility operators are required to submit a written report providing additional BMPs that will be implemented to achieve water quality standards.

Storm Water Pollution Prevention Plans (SWPPPs)

All facility operators must prepare, retain on site, and implement an SWPPP. The SWPPP has two major objectives: (1) to help identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and (2) to describe and ensure the implementation of BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized non-storm water discharges.

This General Permit requires development and implementation of an SWPPP emphasizing BMPs. This approach provides the flexibility necessary to establish appropriate BMPs for different types of industrial activities and pollutant sources. As this General Permit covers vastly different types of facilities, the State Water Board recognizes that there is no single best way of developing or organizing an SWPPP. The SWPPP requirements contain the essential elements that all facility operators must consider and address in the SWPPP. This General Permit's SWPPP requirements are more detailed than the previous general permit's SWPPP requirements, and the suggested order of the SWPPP elements have been rearranged (1) to correspond more closely with other storm water permits in effect throughout the country, and (2) to generally follow a more logical path. Facility operators that have already developed and implemented SWPPPs under previous general permits are required to review the SWPPP's requirements contained in this General Permit and then review their existing SWPPP for adequacy. If the existing SWPPP adequately identifies and assesses all potential sources of pollutants and describes the appropriate BMPs necessary to reduce or prevent pollutants, the facility operator is not required to revise the existing SWPPP.

One of the major elements of the SWPPP is the elimination of unauthorized non-storm water discharges to the facility's storm drain system. Unauthorized non-storm water discharges can be generated from a wide variety of potential pollutant sources. They include waters from the rinsing or washing of vehicles, equipment, buildings, or pavement; materials that have been improperly disposed of or dumped, and spilled; or leaked materials. Unauthorized non-storm water discharges can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. Unauthorized non-storm water discharges may enter the storm drain system via conveyances such as floor drains. All conveyances should be evaluated to determine whether they convey unauthorized non-storm water discharges to the storm drain system. Unauthorized non-storm water discharges (even when commingled with storm water) shall be eliminated or covered by a separate NPDES Permit.

There are many non-storm water discharges that, under certain conditions, should not contain pollutants associated with

industrial activity (i.e., air conditioning condensate, potable water line testing, landscaping overflow, etc.). Item D, Special Conditions, provides the conditions where certain listed non-storm water discharges are authorized by this General Permit.

Monitoring Program

The General Permit requires development and implementation of a monitoring program. The objectives of the monitoring program are to (1) demonstrate compliance with the General Permit, (2) aid in the implementation of the SWPPP, and (3) measure the effectiveness of the BMPs in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges.

All facility operators (with the exception of inactive mining operations) are required to:

1. Perform visual observations of storm water discharges and authorized storm water discharges.

2. Collect and analyze samples of storm water discharges. Analysis must include pH, total suspended solids (TSS), total organic carbon (TOC), specific conductance, toxic chemicals, and other pollutants which are likely to be present in storm water discharges in significant quantities, and those parameters listed in Table D of this General Permit. The Table D parameters are those listed in the U.S. EPA Multi-Sector General Permit. Facility operators subject to Federal storm water effluent limitation guidelines in 40 CFR Subchapter N must also sample and analyze for any pollutant specified in the appropriate category of 40 CFR Subchapter N.

Facility operators are not required to collect samples or perform visual observations during adverse climatic conditions. Sample collection and visual observations are required only during scheduled facility operating hours. Visual observations are required only during daylight hours. Facility operators that are unable to collect any of the required samples or visual observations because of the above circumstances must provide documentation to the Regional Water Board in their annual report.

Facility operators may be exempt from performing sampling and analysis if they: (1) do not have areas of industrial activity exposed to storm water, (2) receive an exemption from a local agency which has jurisdiction over the storm sewer system, or (3) receive an exemption from the appropriate Regional Water Board. Facility operators must always perform sampling and analysis for any pollutant specified in storm water effluent limitation guidelines.

This General Permit contains a new procedure where facility operators, if they meet certain minimum conditions, may certify compliance with the General Permit and reduce the number of

sampling events required to be sampled for the remaining term of the General Permit. Each Regional Water Board may develop instructions, guidance, and checklists to assist facility operators to complete sampling reduction requests.

Local agencies that wish to provide sampling and analysis exemptions or reductions to facility operators within their jurisdiction shall develop a certification program that clearly indicates the certification procedures and criteria used by the local agency. At a minimum, these programs should include site inspections, a review of the facility operator's SWPPP, and a review of other records such as monitoring data, receiving water data, etc. The certification program shall be approved by the local Regional Water Board before implementation.

Alternative Monitoring

Facility operators are required to develop a facility-specific monitoring program that satisfies both the minimum monitoring program requirements and the objectives of the monitoring program. Some facility operators have indicated that cost-effective alternative monitoring programs can be developed that provide equivalent or more accurate indicators of pollutants and/or BMP performance than a monitoring program based upon the minimum monitoring program requirements. An example of such an alternative monitoring program would be one that identifies sample locations at or near pollutant sources rather than sampling an entire drainage area where the storm water discharge has been diluted with storm water from areas with little or no industrial activity.

The State Water Board does not want to preclude facility operators from developing better, and perhaps more cost-effective, monitoring programs. This General Permit allows facility operators to submit alternative monitoring programs for approval by the Regional Water Board. For individual facilities, these proposals must be facility specific and demonstrate how the alternative monitoring program will result in an equivalent or more accurate indicator of pollutants and/or BMP effectiveness. Facility operators with similar industrial activities may also propose alternative monitoring programs for approval by the Regional Water Boards. These proposals must demonstrate how the alternative monitoring program will result in an equivalent or more accurate indicator of pollutants and/or BMP effectiveness for all of the participating facilities.

Facility operators shall continue to comply with the existing monitoring program requirements until receiving approval by the Regional Water Board.

Group Monitoring

Each facility operator may either perform sampling and analysis individually or participate in a group monitoring program. A group monitoring program may be developed either by a group leader representing a group of similar facilities or by a local agency which holds a storm water permit for a municipal separate storm sewer system for industrial facilities within its jurisdiction. The group leader or local agency responsible for the group monitoring program must schedule all participating facilities to sample two storm events over the life of this General Permit. Facility operators subject to Federal effluent limitations guidelines in 40 CFR Subchapter N must individually sample and analyze for pollutants listed in the appropriate Federal regulations.

Participants within a group may be located within the jurisdiction of more than one Regional Water Board. Multi-Regional Water Board groups must receive the approval of the State Water Board Executive Director (with the concurrence of the appropriate Regional Water Boards).

Each group leader or local agency responsible for group sampling must: (1) provide guidance or training so that the monitoring is done correctly, (2) recommend appropriate BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges from group participants, (3) evaluate and report the monitoring data to the State Water Board and/or the appropriate Regional Water Board(s), and (4) conduct two on-site inspections at each facility over the five year term of this General Permit to evaluate facility compliance and recommend BMPs to achieve compliance with this General Permit. The group leader or local agency may designate, hire, or train inspectors to conduct these inspections that are or are not directly affiliated with the group leader or local agency. It is the group leader's or local agency's responsibility to select inspectors that are capable of evaluating each facility's compliance with the General Permit and can recommend appropriate BMPs. All group monitoring plans are subject to State Water Board and/or Regional Water Board(s) review. Consistent with the four-tier permitting strategy described in the Federal regulations, the Regional Water Board(s) may evaluate the data and results from group monitoring to establish future permitting decisions. As appropriate, the State Water Board and/or the Regional Water Board(s) may terminate or require substantial amendment to the group monitoring plans. The State Water Board and/or the Regional Water Board(s) may terminate a facility's participation in group monitoring or require additional monitoring activities.

Retention of Records

The facility operator is required to retain records of all monitoring information, copies of all reports required by this General Permit, and records of all data used to complete the NOI for a period of five years from the date of measurement, report, or monitoring activity. This period may be extended by the State and/or Regional Water Boards. All records are public documents and must be provided to the Regional Water Boards on request.

Watershed Management

The State and Regional Water Boards are undertaking a focussed effort in watershed management throughout the State. In reissuing this General Permit, the State Water Board recognizes both the evolving nature of watershed management and the long-term desirability of structuring monitoring programs to support the Watershed Management Initiative. Therefore, the amended monitoring and reporting provisions provide flexibility for individual facility operators or groups of facility operators to propose and participate in, subject to Regional Water Board approval, watershed monitoring programs in lieu of some or all of the monitoring requirements contained in this General Permit.

Facility Operator Compliance Responsibilities

This General Permit has been written to encourage individual facility operators to develop their own SWPPP and monitoring programs. Many facility operators, however, choose to obtain compliance assistance either by hiring a consultant on an individual basis or by participating in a group monitoring plan. Regardless of how a facility operator chooses to pursue compliance, it is the facility operator that is responsible for compliance with this General Permit.

The State Water Board recognizes that industrial activities and operating conditions at many facilities change over time. In addition, new and more effective BMPs are being developed by various facility operators and by industrial groups. The SWPPP and monitoring program requirements include various inspections, reviews, and observations all of which recognize, encourage, and mandate an iterative self-evaluation process that is necessary to consistently comply with this General Permit. In general, facility operators that develop and implement SWPPPs that comply with this General Permit should not be penalized when discovering minor violations through this iterative self-evaluation process. The General Permit provides facility operators up to 90 days to revise and implement the SWPPP to correct such violations.

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
WATER QUALITY ORDER NO. 97-03-DWQ
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT NO. CAS000001 (GENERAL PERMIT)

WASTE DISCHARGE REQUIREMENTS (WDRS) FOR DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES EXCLUDING CONSTRUCTION ACTIVITIES

The State Water Board finds that:

1. Federal regulations for storm water discharges were issued by the U.S. Environmental Protection Agency (U.S. EPA) on November 16, 1990 (40 Code of Federal Regulations [CFR] Parts 122, 123, and 124). The regulations require operators of specific categories of facilities where discharges of storm water associated with industrial activity (storm water) occur to obtain an NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm discharges.

2. This General Permit shall regulate storm water discharges and authorized non-storm water discharges from specific categories of industrial facilities identified in Attachment 1, storm water discharges and authorized non-storm water discharges from facilities as designated by the Regional Water Quality Control Boards (Regional Water Boards), and storm water discharges and authorized non-storm water discharges from other facilities seeking General Permit coverage. This General Permit may also regulate storm water discharges and authorized non-storm water discharges from facilities as required by U.S. EPA regulations. This General Permit shall regulate storm water discharges and authorized non-storm water discharges previously regulated by San Francisco Bay Regional Water Board Order, No.92-11 (as amended by Order No. 92-116). This General Permit excludes storm water discharges and non-storm water discharges that are regulated by other individual or general NPDES permits, storm water discharges and non-storm water discharges from construction activities, and storm water discharges and non-storm water discharges excluded by the Regional Water Boards for coverage by this General Permit. Attachment 2 contains the addresses and telephone numbers of each Regional Water Board office.

3. To obtain coverage for storm water discharges and authorized non-storm water discharges pursuant to this General Permit, operators of facilities (facility operators) must submit a Notice of Intent (NOI), in accordance with the Attachment 3

instructions, and appropriate annual fee to the State Water Board. This includes facility operators that have participated in U.S. EPA's group application process.

4. This General Permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control storm water discharges and authorized non-storm water discharges to storm drain systems or other water-courses within their jurisdictions as allowed by State and Federal law.

5. If an individual NPDES permit is issued to a facility operator otherwise subject to this General Permit or an alternative NPDES general permit is subsequently adopted which covers storm water discharges and/or authorized non-storm water discharges regulated by this General Permit, the applicability of this General Permit to such discharges is automatically terminated on the effective date of the individual NPDES permit or the date of approval for coverage under the subsequent NPDES general permit.

6. Effluent limitations and toxic and effluent standards established in Sections 208(b), 301, 302, 303(d), 304, 306, 307, and 403 of the Federal Clean Water Act (CWA), as amended, are applicable to storm water discharges and authorized non-storm water discharges regulated by this General Permit.

7. This action to adopt an NPDES general permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the California Water Code.

8. Federal regulations (40 CFR Subchapter N) establish effluent limitations guidelines for storm water discharges from some facilities in ten industrial categories.

9. For facilities which do not have established effluent limitation guidelines for storm water discharges in 40 CFR Subchapter N, it is not feasible at this time to establish numeric effluent limitations. This is due to the large number of discharges and the complex nature of storm water discharges. This is also consistent with the U.S. EPA's August 1, 1996 "Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits."

10. Facility operators are required to comply with the terms and conditions of this General Permit. Compliance with the terms and conditions of this General Permit constitutes compliance with BAT/BCT requirements and with requirements to achieve water quality standards. This includes the development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges.

11. Best Management Practices (BMPs) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges are appropriate where numeric effluent limitations are infeasible, and the implementation of BMPs is adequate to achieve compliance with BAT/BCT and with water quality standards.

12. The State Water Board has adopted a Watershed Management Initiative that encourages watershed management throughout the State. This General Permit recognizes the Watershed Management Initiative by supporting the development of watershed monitoring programs authorized by the Regional Water Boards.

13. Following adoption of this General Permit, the Regional Water Boards shall enforce its provisions.

14. Following public notice in accordance with State and Federal laws and regulations, the State Water Board held a public hearing on November 12, 1996 and heard and considered all comments pertaining to this General Permit. A response to all significant comments has been prepared and is available for public review.

15. This Order is an NPDES General Permit in compliance with Section 402 of the CWA and shall take effect upon adoption by the State Water Board.

16. All terms that are defined in the CWA, U.S. EPA storm water regulations and the Porter-Cologne Water Quality Control Act will have the same definition in this General Permit unless otherwise stated.

IT IS HEREBY ORDERED that all facility operators required to be regulated by this General Permit shall comply with the following:

A. DISCHARGE PROHIBITIONS:

1. Except as allowed in Special Conditions (D.1.) of this General Permit, materials other than storm water (non-storm water discharges) that discharge either directly or indirectly to waters of the United States are prohibited. Prohibited non-storm water discharges must be either eliminated or permitted by a separate NPDES permit.

2. Storm water discharges and authorized non-storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance.

B. EFFLUENT LIMITATIONS:

1. Storm water discharges from facilities subject to storm water effluent limitation guidelines in Federal regulations (40 CFR

Subchapter N) shall not exceed the specified effluent limitations.

2. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.

3. Facility operators covered by this General Permit must reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges through implementation of BAT for toxic and non-conventional pollutants and BCT for conventional pollutants. Development and implementation of an SWPPP that complies with the requirements in Section A of the General Permit and that includes BMPs that achieve BAT/BCT constitutes compliance with this requirement.

C. RECEIVING WATER LIMITATIONS:

1. Storm water discharges and authorized non-storm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. Storm water discharges and authorized non-storm water discharges shall not cause or contribute to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan or the applicable Regional Water Board's Basin Plan.

3. A facility operator will not be in violation of Receiving Water Limitation C.2. as long as the facility operator has implemented BMPs that achieve BAT/BCT and the following procedure is followed:

a. The facility operator shall submit a report to the appropriate Regional Water Board that describes the BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report shall include an implementation schedule. The Regional Water Board may require modifications to the report.

b. Following approval of the report described above by the Regional Water Board, the facility operator shall revise its SWPPP and monitoring program to incorporate the additional BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required.

4. A facility operator shall be in violation of this General Permit if he/she fails to do any of the following:

a. Submit the report described above within 60 days after either the facility operator or the Regional Water Board determines that discharges are causing or contributing to an exceedance of an applicable water quality standard;

b. Submit a report that is approved by the Regional Water Board; or

c. Revise its SWPPP and monitoring program as required by the approved report.

D. SPECIAL CONDITIONS

1. Non-Storm Water Discharges

a. The following non-storm water discharges are authorized by this General Permit provided that they satisfy the conditions specified in Paragraph b. below: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.

b. The non-storm water discharges as provided in Paragraph a. above are authorized by this General Permit if all the following conditions are met:

i. The non-storm water discharges are in compliance with Regional Water Board requirements.

ii. The non-storm water discharges are in compliance with local agency ordinances and/or requirements.

iii. BMPs are specifically included in the SWPPP to (1) prevent or reduce the contact of non-storm water discharges with significant materials or equipment and (2) minimize, to the extent practicable, the flow or volume of non-storm water discharges.

iv. The non-storm water discharges do not contain significant quantities of pollutants.

v. The monitoring program includes quarterly visual observations of each non-storm water discharge and its sources to ensure that BMPs are being implemented and are effective.

vi. The non-storm water discharges are reported and described annually as part of the annual report.

c. The Regional Water Board or its designee may establish additional monitoring programs and reporting requirements for any non-storm water discharge authorized by this General Permit.

d. Discharges from firefighting activities are authorized by this General Permit and are not subject to the conditions of Paragraph b. above.

E. PROVISIONS

1. All facility operators seeking coverage by this General Permit must submit an NOI for each of the facilities they operate. Facility operators filing an NOI after the adoption of this General Permit shall use the NOI form and instructions (Attachment 3) attached to this General Permit. Existing facility operators who have filed an NOI pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116) shall submit an abbreviated NOI form provided by the State Water Board. The abbreviated NOI form shall be submitted within 45 days of receipt.

2. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing SWPPP and shall implement any necessary revisions to their SWPPP in accordance with Section A of this General Permit in a timely manner, but in no case later than August 1, 1997. Facility operators beginning industrial activities after adoption of this General Permit must develop and implement an SWPPP in accordance with Section A of this General Permit when the industrial activities begin.

3. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing Monitoring Program and shall implement any necessary revisions to their Monitoring Program in accordance with Section B of the General Permit in a timely manner, but in no case later than August 1, 1997. Facility operators beginning industrial activities after adoption of this General Permit must develop and implement a Monitoring Program in

accordance with Section B of this General Permit when industrial activities begin.

4. Facility operators of feedlots as defined in 40 CFR Part 412 that are in full compliance with Section 2560 to Section 2565, Title 23, California Code of Regulations (Chapter 15) will be in compliance with all effluent limitations and prohibitions contained in this General Permit. Facility operators of feedlots that comply with Chapter 15, however, must perform monitoring in compliance with the requirements of Section B.4.d. and B.14. of this General Permit. Facility operators of feedlots must also comply with any Regional Water Board WDRs or NPDES general permit regulating their storm water discharges.

5. All facility operators must comply with lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding storm water discharges and non-storm water discharges entering storm drain systems or other watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Water Boards to local agencies.

6. All facility operators must comply with the standard provisions and reporting requirements for each facility covered by this General Permit contained in Section C, Standard Provisions.

7. Facility operators that operate facilities with co-located industrial activities (facilities that have industrial activities that meet more than one of the descriptions in Attachment 1) that are contiguous to one another are authorized to file a single NOI to comply with the General Permit. Storm water discharges and authorized non-storm water discharges from the co-located industrial activities are authorized if the SWPPP and Monitoring Program addresses each co-located industrial activity.

8. Upon reissuance of a successor NPDES general permit by the State Water Board, the facility operators subject to this reissued General Permit may be required to file an NOI.

9. Facility operators may request to terminate their coverage under this General Permit by filing a Notice of Termination (NOT) with the Regional Water Board. The NOT shall provide all documentation requested by the Regional Water Board. The facility operator will be notified when the NOT has been approved. Should the NOT be denied, facility operators are responsible for continued compliance with the requirements of this General Permit.

10. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116) shall:

    a. Complete the 1996-97 activities required by those general permits. These include, but are not limited to, conducting any remaining visual observations, sample collection, annual site inspection, annual report submittal, and (for group monitoring leaders) Group Evaluation Reports; and

    b. Comply with the requirements of this General Permit no later than August 1, 1997.

11. If the Regional Water Board determines that a discharge may be causing or contributing to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan or the applicable Regional Water Board's Basin Plan, the Regional Water Board may order the facility operator to comply with the requirements described in Receiving Water Limitation C.3. The facility operator shall comply with the requirements within the time schedule established by the Regional Water Board.

12. If the facility operator determines that its storm water discharges or authorized non-storm water discharges are causing or contributing to an exceedance of any applicable water quality standards, the facility operator shall comply with the requirements described in Receiving Water Limitation C.3.

13. State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) and San Francisco Bay Regional Water Board Order No. 91-011 (as amended by Order No. 92-116) are hereby rescinded.

F. REGIONAL WATER BOARD AUTHORITIES

1. Following adoption of this General Permit, Regional Water Boards shall:

    a. Implement the provisions of this General Permit, including, but not limited to, reviewing SWPPPs, reviewing annual reports, conducting compliance inspections, and taking enforcement actions.

    b. Issue other NPDES general permits or individual NPDES storm water permits as they deem appropriate to individual facility operators, facility operators of specific categories of industrial activities, or facility operators in a watershed or geographic area. Upon issuance of such NPDES permits by a Regional Water Board, the affected facility operator shall no longer

be regulated by this General Permit. Any new NPDES permit issued by the Regional Water Board may contain different requirements than the requirements of this General Permit.

2. Regional Water Boards may provide guidance to facility operators on the SWPPP and the Monitoring Program and reporting implementation.

3. Regional Water Boards may require facility operators to conduct additional SWPPP and Monitoring Program and reporting activities necessary to achieve compliance with this General Permit.

4. Regional Water Boards may approve requests from facility operators whose facilities include co-located industrial activities that are not contiguous within the facilities (e.g., some military bases) to comply with this General Permit under a single NOI. Storm water discharges and authorized non-storm water discharges from the co-located industrial activities and from other sources within the facility that may generate significant quantities of pollutants are authorized provided the SWPPP and Monitoring Program addresses each co-located industrial activity and other sources that may generate significant quantities of pollutants.

CERTIFICATION

The undersigned, Administrative Assistant to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on April 17, 1997.

AYE: John P. Caffrey
John W. Brown
James M. Stubchaer
Marc Del Piero
Mary Jane Forster

NO: None

ABSENT: None

ABSTAIN: None

Maureen Marché

Administrative Assistant to the Board

SECTION A: STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS

1. *Implementation Schedule*

A storm water pollution prevention plan (SWPPP) shall be developed and implemented for each facility covered by this General Permit in accordance with the following schedule.

a. Facility operators beginning industrial activities before October 1, 1992 shall develop and implement the SWPPP no later than October 1, 1992. Facility operators beginning industrial activities after October 1, 1992 shall develop and implement the SWPPP when industrial activities begin.

b. Existing facility operators that submitted a Notice of Intent (NOI), pursuant to State Water Resources Control Board (State Water Board) Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing SWPPP and shall implement any necessary revisions to their SWPPP in a timely manner, but in no case later than August 1, 1997.

2. *Objectives*

The SWPPP has two major objectives: (a) to identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility; and (b) to identify and implement site-specific best management practices (BMPs) to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges. BMPs may include a variety of pollution prevention measures or other low-cost and pollution control measures. They are generally categorized as non-structural BMPs (activity schedules, prohibitions of practices, maintenance procedures, and other low-cost measures) and as structural BMPs (treatment measures, run-off controls, over-head coverage.) To achieve these objectives, facility operators should consider the five phase process for SWPPP development and implementation as shown in Table A.

The SWPPP requirements are designed to be sufficiently flexible to meet the needs of various facilities. SWPPP requirements that are not applicable to a facility should not be included in the SWPPP.

A facility's SWPPP is a written document that shall contain a compliance activity schedule, a description of industrial activities and pollutant sources, descriptions of BMPs, drawings, maps, and relevant copies or references of parts of other plans. The SWPPP shall be revised whenever appropriate and shall be readily available for review by facility employees or Regional Water Board inspectors.

3. *Planning and Organization*

a. *Pollution Prevention Team*

The SWPPP shall identify a specific individual or individuals and their positions within the facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Section B of this General Permit. The SWPPP shall clearly identify the General Permit related responsibilities, duties, and activities of each team member. For small facilities, storm water pollution prevention teams may consist of one individual where appropriate.

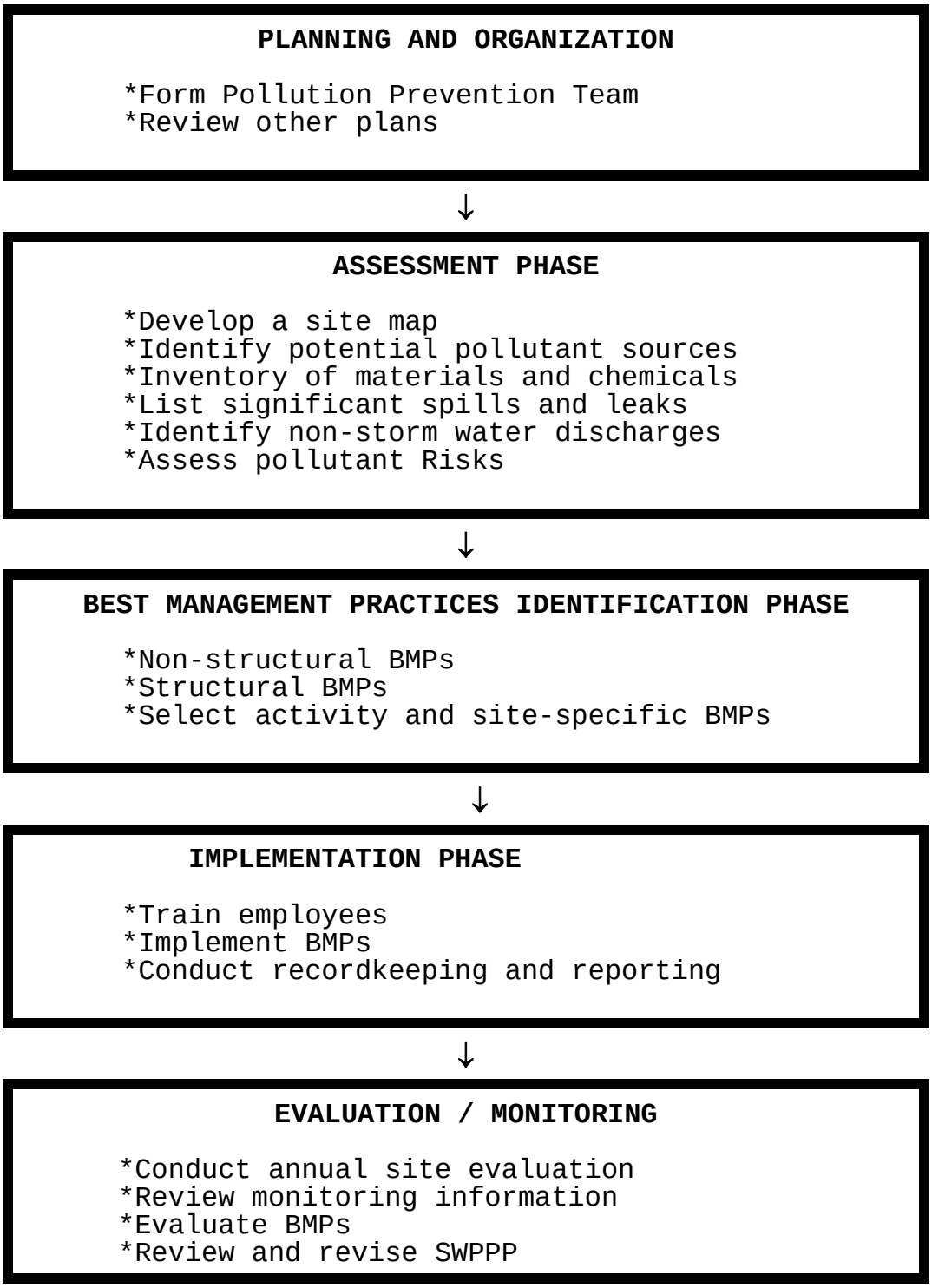
b. *Review Other Requirements and Existing Facility Plans*

The SWPPP may incorporate or reference the appropriate elements of other regulatory requirements. Facility operators should review all local, State, and Federal requirements that impact, complement, or are consistent with the requirements of this General Permit. Facility operators should identify any existing facility plans that contain storm water pollutant control measures or relate to the requirements of this General Permit. As examples, facility operators whose facilities are subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials. Similarly, facility operators whose facilities are subject to air quality related permits and regulations may already have evaluated industrial activities that generate dust or particulates.

4. Site Map

The SWPPP shall include a site map. The site map shall be provided on an 8-½ x 11 inch or larger sheet and include notes, legends, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, facility operators may provide the required information on multiple site maps.

TABLE A
FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL STORM WATER POLLUTION PREVENTION PLANS



The following information shall be included on the site map:

a. The facility boundaries; the outline of all storm water drainage areas within the facility boundaries; portions of the drainage area impacted by run-on from surrounding areas; and direction of flow of each drainage area, on-site surface water bodies, and areas of soil erosion. The map shall also identify nearby water bodies (such as rivers, lakes, and ponds) and municipal storm drain inlets

where the facility's storm water discharges and authorized non-storm water discharges may be received.

b. The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

c. An outline of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures.

d. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified in Section A.6.a.iv. below have occurred.

e. Areas of industrial activity. This shall include the locations of all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and rinsing areas, and other areas of industrial activity which are potential pollutant sources.

5. List of Significant Materials

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, describe the locations where the material is being stored, received, shipped, and handled, as well as the typical quantities and frequency. Materials shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

6. Description of Potential Pollutant Sources

a. The SWPPP shall include a narrative description of the facility's industrial activities, as identified in Section A.4.e above, associated potential pollutant sources, and potential pollutants that could be discharged in storm water discharges or authorized non-storm water discharges. At a minimum, the following items related to a facility's industrial activities shall be considered:

i. Industrial Processes

Describe each industrial process, the type, characteristics, and quantity of significant materials used in or resulting from the process, and a description of the manufacturing, cleaning, rinsing, recycling, disposal, or other activities related to the process. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.

ii. Material Handling and Storage Areas

Describe each handling and storage area, type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.

iii. Dust and Particulate Generating Activities

Describe all industrial activities that generate dust or particulates that may be deposited within the facility's boundaries and identify their discharge locations; the characteristics of dust and particulate pollutants; the approximate quantity of dust and particulate pollutants that may be deposited within the facility boundaries; and a description of the primary areas of the facility where dust and particulate pollutants would settle.

iv. Significant Spills and Leaks

Describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges since April 17, 1994. Include toxic chemicals (listed in 40 CFR, Part 302) that have been discharged to storm water as reported on U.S. Environmental Protection Agency (U.S. EPA) Form R, and oil and hazardous substances in excess of reportable quantities (see 40 Code of Federal Regulations [CFR], Parts 110, 117, and 302).

The description shall include the type, characteristics, and approximate quantity of the material spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water

discharges, and the preventative measures taken to ensure spill or leaks do not reoccur. Such list shall be updated as appropriate during the term of this General Permit.

v. Non-Storm Water Discharges

Facility operators shall investigate the facility to identify all non-storm water discharges and their sources. As part of this investigation, all drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

All non-storm water discharges shall be described. This shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area.

Non-storm water discharges that contain significant quantities of pollutants or that do not meet the conditions provided in Special Conditions D. are prohibited by this General Permit (Examples of prohibited non-storm water discharges are contact and non-contact cooling water, boiler blowdown, rinse water, wash water, etc.). Non-storm water discharges that meet the conditions provided in Special Condition D. are authorized by this General Permit. The SWPPP must include BMPs to prevent or reduce contact of non-storm water discharges with significant materials or equipment.

vi. Soil Erosion

Describe the facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.

b. The SWPPP shall include a summary of all areas of industrial activities, potential pollutant sources, and potential pollutants. This information should be summarized similar to Table B. The last column of Table B, "Control Practices", should be completed in accordance with Section A.8. below.

7. <u>Assessment of Potential Pollutant Sources</u>

a. The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in A.6. above to determine:

i. Which areas of the facility are likely sources of

pollutants in storm water discharges and authorized non-storm water discharges, and

ii. Which pollutants are likely to be present in storm water discharges and authorized non-storm water discharges. Facility operators shall consider and evaluate various factors when performing this assessment such as current storm water BMPs; quantities of significant materials handled, produced, stored, or disposed of; likelihood of exposure to storm water or authorized non-storm water discharges; history of spill or leaks; and run-on from outside sources.

b. Facility operators shall summarize the areas of the facility that are likely sources of pollutants and the corresponding pollutants that are likely to be present in storm water discharges and authorized non-storm water discharges.

Facility operators are required to develop and implement additional BMPs as appropriate and necessary to prevent or reduce pollutants associated with each pollutant source. The BMPs will be narratively described in Section 8 below.

8. Storm Water Best Management Practices

The SWPPP shall include a narrative description of the storm water BMPs to be implemented at the facility for each potential pollutant and its source identified in the site assessment phase (Sections A.6. and 7. above). The BMPs shall be developed and implemented to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Each pollutant and its source may require one or more BMPs. Some BMPs may be implemented for multiple pollutants and their sources, while other BMPs will be implemented for a very specific pollutant and its source.

TABLE B
EXAMPLE
ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES
SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection - Minimize run-on of storm water into the fueling area - Cover fueling area - Use dry cleanup methods rather than hosing down area - Implement proper spill prevention control program - Implement adequate preventative maintenance program to preventive tank and line leaks - Inspect fueling areas regularly to detect problems before they occur - Train employees on proper fueling, cleanup, and spill response techniques.
		Spills caused by topping off fuel tanks	fuel oil	
		Hosing or washing down fuel area	fuel oil	
		Leaking storage tanks	fuel oil	
		Rainfall running off fueling area, and rainfall running onto and off fueling area	fuel oil	

The description of the BMPs shall identify the BMPs as (1) existing BMPs, (2) existing BMPs to be revised and implemented, or (3) new BMPs to be implemented. The description shall also include a discussion on the effectiveness of each BMP to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. The SWPPP shall provide a summary of all BMPs implemented for each pollutant source. This information should be summarized similar to Table B.

Facility operators shall consider the following BMPs for implementation at the facility:

a. Non-Structural BMPs

Non-structural BMPs generally consist of processes, prohibitions, procedures, schedule of activities, etc., that prevent pollutants associated with industrial activity from contacting with storm water discharges and authorized non-storm water discharges. They are considered low technology, cost-effective measures. Facility operators should consider all possible non-structural BMPs options before considering additional structural BMPs (see Section A.8.b. below). Below is a list of non-structural BMPs that should be considered:

i. Good Housekeeping

Good housekeeping generally consist of practical procedures to maintain a clean and orderly facility.

ii. Preventive Maintenance

Preventive maintenance includes the regular inspection and maintenance of structural storm water controls (catch basins, oil/water separators, etc.) as well as other facility equipment and systems.

iii. Spill Response

This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.

iv. Material Handling and Storage

This includes all procedures to minimize the potential for spills and leaks and to minimize exposure of significant materials to storm water and authorized non-storm water discharges.

v. Employee Training

This includes training of personnel who are responsible for (1) implementing activities identified in the SWPPP, (2) conducting inspections, sampling, and visual observations, and (3) managing storm water. Training should address topics such as spill response, good housekeeping, and material handling procedures, and actions necessary to implement all BMPs identified in the SWPPP. The SWPPP shall identify periodic dates for such training. Records shall be maintained of all training sessions held.

vi. Waste Handling/Recycling

This includes the procedures or processes to handle, store, or dispose of waste materials or recyclable materials.

vii. Recordkeeping and Internal Reporting

This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc., are developed, retained, and provided, as necessary, to the appropriate facility personnel.

viii. Erosion Control and Site Stabilization

This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices, etc.

ix. Inspections

This includes, in addition to the preventative maintenance inspections identified above, an inspection schedule of all potential pollutant sources. Tracking and follow-up procedures shall be described to ensure adequate corrective actions are taken and SWPPPs are made.

x. Quality Assurance

This includes the procedures to ensure that all elements of the SWPPP and Monitoring Program are adequately conducted.

b. Structural BMPs

Where non-structural BMPs as identified in Section A.8.a. above are not effective, structural BMPs shall be considered. Structural BMPs generally consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that should be considered:

i. Overhead Coverage

This includes structures that provide horizontal coverage of materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.

ii. Retention Ponds

This includes basins, ponds, surface impoundments, bermed areas, etc. that do not allow storm water to discharge from the facility.

iii. Control Devices

This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.

iv. Secondary Containment Structures

This generally includes containment structures around storage tanks and other areas for the purpose of collecting any leaks or spills.

v. Treatment

This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc. that reduce the pollutants in storm water discharges and authorized non-storm water discharges.

9. <u>Annual Comprehensive Site Compliance Evaluation</u>

The facility operator shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1-June 30). Evaluations shall be conducted within 8-16 months of each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

a. A review of all visual observation records, inspection records, and sampling and analysis results.

b. A visual inspection of all potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system.

c. A review and evaluation of all BMPs (both structural and non-structural) to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed. A visual inspection of equipment needed to implement the SWPPP, such as spill response equipment, shall be included.

d. An evaluation report that includes, (i) identification of personnel performing the evaluation, (ii) the date(s) of the evaluation, (iii) necessary SWPPP revisions, (iv) schedule, as required in Section A.10.e, for implementing SWPPP revisions, (v) any incidents of non-compliance and the corrective actions taken, and (vi) a certification that the facility operator is in compliance with this General Permit. If the above certification cannot be provided, explain in the evaluation report why the facility operator is not in compliance with this General Permit. The evaluation report shall be submitted as part of the annual report, retained for at least five years, and signed and certified in accordance with Standard Provisions 9. and 10. of Section C. of this General Permit.

10. *SWPPP General Requirements*

a. The SWPPP shall be retained on site and made available upon request of a representative of the Regional Water Board and/or local storm water management agency (local agency) which receives the storm water discharges.

b. The Regional Water Board and/or local agency may notify the facility operator when the SWPPP does not meet one or more of the minimum requirements of this Section. As requested by the Regional Water Board and/or local agency, the facility operator shall submit an SWPPP revision and implementation schedule that meets the minimum requirements of this section to the Regional Water Board and/or local agency that requested the SWPPP revisions. Within 14 days after implementing the required SWPPP revisions, the facility operator shall provide written certification to the Regional Water Board and/or local agency that the revisions have been implemented.

c. The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities which (i) may significantly increase the quantities of pollutants in storm water discharge, (ii) cause a new area of industrial activity at the facility to be exposed to storm water, or (iii) begin an industrial activity which would introduce a new pollutant source at the facility.

d. Other than as provided in Provisions B.11, B.12, and E.2 of the General Permit, the SWPPP shall be revised and implemented in a timely manner, but in no case more than 90 days after a facility operator determines that the SWPPP is in violation of any requirement(s) of this General Permit.

e. When any part of the SWPPP is infeasible to implement by the deadlines specified in Provision E.2 or Sections A.1, A.9, A.10.c, and A.10.d of this General Permit due to proposed significant structural changes, the facility operator shall submit a report to the Regional Water Board prior to the applicable deadline that (i) describes the portion of the SWPPP that is infeasible to implement by the deadline, (ii) provides justification for a time extension, (iii) provides a schedule for completing and implementing that portion of the SWPPP, and (iv) describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Such reports are subject to Regional Water Board approval and/or modifications. Facility operators shall provide written notification to the Regional Water Board within 14 days after the SWPPP revisions are implemented.

f. The SWPPP shall be provided, upon request, to the Regional Water Board. The SWPPP is considered a report that shall be available to the public by the Regional Water Board under Section 308(b) of the Clean Water Act.

SECTION B. MONITORING PROGRAM AND REPORTING REQUIREMENTS

1. *Implementation Schedule*

Each facility operator shall develop a written monitoring program for each facility covered by this General Permit in accordance with the following schedule:

a. Facility operators beginning industrial activities before October 1, 1992 shall develop and implement a monitoring program no later than October 1, 1992. Facility operators beginning operations after October 1, 1992 shall develop and implement a monitoring program when the industrial activities begin.

b. Facility operators that submitted a Notice Of Intent (NOI) pursuant to State Water Resources Control Board (State Water Board) Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing monitoring program and implement any necessary revisions to their monitoring program in a timely manner, but in no case later than August 1, 1997. These facility operators may use the monitoring results conducted in accordance with those expired general permits to satisfy the pollutant/parameter reduction requirements in Section B.5.c., Sampling and Analysis Exemptions and Reduction certifications in Section B.12., and Group Monitoring Sampling credits in B.15.k. For facilities beginning industrial activities after the adoption of this General Permit, the monitoring program shall be developed and implemented when the facility begins the industrial activities.

2. *Objectives*

The objectives of the monitoring program are to:

a. Ensure that storm water discharges are in compliance with the Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations specified in this General Permit.

b. Ensure practices at the facility to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges are evaluated and revised to meet changing conditions.

c. Aid in the implementation and revision of the SWPPP required by Section A of this General Permit.

d. Measure the effectiveness of best management practices (BMPs) to prevent or reduce pollutants in storm water

discharges and authorized non-storm water discharges. Much of the information necessary to develop the monitoring program, such as discharge locations, drainage areas, pollutant sources, etc., should be found in the Storm Water Pollution Prevention Plan (SWPPP). The facility's monitoring program shall be a written, site-specific document that shall be revised whenever appropriate and be readily available for review by employees or Regional Water Board inspectors.

3. *Non-storm Water Discharge Visual Observations*

a. Facility operators shall visually observe all drainage areas within their facilities for the presence of unauthorized non-storm water discharges;

b. Facility operators shall visually observe the facility's authorized non-storm water discharges and their sources;

c. The visual observations required above shall occur quarterly, during daylight hours, on days with no storm water discharges, and during scheduled facility operating hours[1]. Quarterly visual observations shall be conducted in each of the following periods: January-March, April-June, July-September, and October-December. Facility operators shall conduct quarterly visual observations within 6-18 weeks of each other.

d. Visual observations shall document the presence of any discolorations, stains, odors, floating materials, etc., as well as the source of any discharge. Records shall be maintained of the visual observation dates, locations observed, observations, and response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Section A of this General Permit.

4. *Storm Water Discharge Visual Observations*

a. With the exception of those facilities described in Section B.4.d. below, facility operators shall visually

[1] "Scheduled facility operating hours" are the time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

observe storm water discharges from one storm event per month during the wet season (October 1-May 30). These visual observations shall occur during the first hour of discharge and at all discharge locations. Visual observations of stored or contained storm water shall occur at the time of release.

b. Visual observations are only required of storm water discharges that occur during daylight hours that are preceded by at least three (3) working days[2] without storm water discharges and that occur during scheduled facility operating hours.

c. Visual observations shall document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and source of any pollutants. Records shall be maintained of observation dates, locations observed, observations, and response taken to reduce or prevent pollutants in storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Section A of this General Permit.

d. Feedlots (subject to Federal effluent limitations guidelines in 40 Code of Federal Regulations [CFR] Part 412) that are in compliance with Sections 2560 to 2565, Article 6, Chapter 15, Title 23, California Code of Regulations, and facility operators with storm water containment facilities shall conduct monthly inspections of their containment areas to detect leaks and ensure maintenance of adequate freeboard. Records shall be maintained of the inspection dates, observations, and any response taken to eliminate leaks and to maintain adequate freeboard.

5. *Sampling and Analysis*

a. Facility operators shall collect storm water samples during the first hour of discharge from (1) the first storm event of the wet season, and (2) at least one other storm event in the wet season. All storm water discharge locations shall be sampled. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is released. Facility operators that do not collect samples from the first storm event of the wet season are still required to collect samples from two other storm events of the wet season and shall explain in the Annual Report why the first storm event was not sampled.

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[2] Three (3) working days may be separated by non-working days such as weekends and holidays provided that no storm water discharges occur during the three (3) working days and the non-working days.

b. Sample collection is only required of storm water discharges that occur during scheduled facility operating hours and that are preceded by at least (3) three working days without storm water discharge.

c. The samples shall be analyzed for:

i. Total suspended solids (TSS) pH, specific conductance, and total organic carbon (TOC). Oil and grease (O&G) may be substituted for TOC; and

ii. Toxic chemicals and other pollutants that are likely to be present in storm water discharges in significant quantities. If these pollutants are not detected in significant quantities after two consecutive sampling events, the facility operator may eliminate the pollutant from future sample analysis until the pollutant is likely to be present again; and

iii. Other analytical parameters as listed in Table D (located at the end of this Section). These parameters are dependent on the facility's standard industrial classification (SIC) code. Facility operators are not required to analyze a parameter listed in Table D when the parameter is not already required to be analyzed pursuant to Section B.5.c.i. and ii. or B.6 of this General Permit, and either of the two following conditions are met: (1) the parameter has not been detected in significant quantities from the last two consecutive sampling events, or (2) the parameter is not likely to be present in storm water discharges and authorized non-storm water discharges in significant quantities based upon the facility operator's evaluation of the facilities industrial activities, potential pollutant sources, and SWPPP. Facility operators that do not analyze for the applicable Table D parameters shall certify in the Annual Report that the above conditions have been satisfied.

iv. Other parameters as required by the Regional Water Board.

6. *Facilities Subject to Federal Storm Water Effluent Limitation Guidelines*

Facility operators with facilities subject to Federal storm water effluent limitation guidelines, in addition to the requirements in Section B.5. above, must complete the following:

a. Collect and analyze two samples for any pollutant specified in the appropriate category of 40 CFR Subchapter N. The sampling and analysis exemptions and reductions described in Section B.12. of this General Permit do not apply to these pollutants.

b. Estimate or calculate the volume of storm water discharges from each drainage area;

c. Estimate or calculate the mass of each regulated pollutant as defined in the appropriate category of 40 CFR Subchapter N; and

d. Identify the individual(s) performing the estimates or calculations in accordance with Subsections b. and c. above.

7. *Sample Storm Water Discharge Locations*

a. Facility operators shall visually observe and collect samples of storm water discharges from all drainage areas that represent the quality and quantity of the facility's storm water discharges from the storm event.

b. If the facility's storm water discharges are commingled with run-on from surrounding areas, the facility operator should identify other visual observation and sample collection locations that have not been commingled by run-on and that represent the quality and quantity of the facility's storm water discharges from the storm event.

c. If visual observation and sample collection locations are difficult to observe or sample (e.g., sheet flow, submerged outfalls), facility operators shall identify and collect samples from other locations that represent the quality and quantity of the facility's storm water discharges from the storm event.

d. Facility operators that determine that the industrial activities and BMPs within two or more drainage areas are substantially identical may either (i) collect samples from a reduced number of substantially identical

drainage areas, or (ii) collect samples from each substantially identical drainage area and analyze a combined sample from each substantially identical drainage area. Facility operators must document such a determination in the annual report.

8. *Visual Observation and Sample Collection Exceptions*

Facility operators are required to be prepared to collect samples and conduct visual observations at the beginning of the wet season (October 1) and throughout the wet season

until the minimum requirements of Sections B.4. and B.5. are completed with the following exceptions:

a. A facility operator is not required to collect a sample and conduct visual observations in accordance with Section B.4 and Section B.5 due to dangerous weather conditions, such as flooding, electrical storm, etc., when storm water discharges begin after scheduled facility operating hours or when storm water discharges are not preceded by three working days without discharge. Visual observations are only required during daylight hours. Facility operators that do not collect the required samples or visual observations during a wet season due to these exceptions shall include an explanation in the Annual Report why the sampling or visual observations could not be conducted.

b. A facility operator may conduct visual observations and sample collection more than one hour after discharge begins if the facility operator determines that the objectives of this Section will be better satisfied. The facility operator shall include an explanation in the Annual Report why the visual observations and sample collection should be conducted after the first hour of discharge.

9. *Alternative Monitoring Procedures*

Facility operators may propose an alternative monitoring program that meets Section B.2 monitoring program objectives for approval by the Regional Water Board. Facility operators shall continue to comply with the monitoring requirements of this Section and may not implement an alternative monitoring plan until the alternative monitoring plan is approved by the Regional Water Board. Alternative monitoring plans are subject to modification by the Regional Water Boards.

10. *Monitoring Methods*

a. Facility operators shall explain how the facility's monitoring program will satisfy the monitoring program objectives of Section B.2. This shall include:

i. Rationale and description of the visual observation methods, location, and frequency.

ii. Rationale and description of the sampling methods, location, and frequency; and

iii. Identification of the analytical methods and corresponding method detection limits used to detect pollutants in storm water discharges. This shall include justification that the method detection limits are adequate to satisfy the objectives of the monitoring program.

b. All sampling and sample preservation shall be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a facility operator's own field instruments for measuring pH and Electro Conductivity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. All metals shall be reported as total metals. With the exception of analysis conducted by facility operators, all laboratory analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. Facility operators may conduct their own sample analyses if the facility operator has sufficient capability (qualified employees, laboratory equipment, etc.) to adequately perform the test procedures.

11. *Inactive Mining Operations*

Inactive mining operations are defined in Attachment 1 of this General Permit. Where comprehensive site compliance evaluations, non-storm water discharge visual observations, storm water discharge visual observations, and storm water sampling are impracticable, facility operators of inactive mining operations may instead obtain certification once every three years by a Registered Professional Engineer that an SWPPP has been prepared for the facility and is being implemented in accordance with the requirements of this General Permit. By means of these certifications, the Registered Professional Engineer having examined the facility and being familiar with the provisions of this General Permit shall attest that the SWPPP has been prepared in accordance with good engineering practices. Facility operators of mining operations who cannot obtain a certification because of noncompliance must notify the appropriate Regional Water Board and, upon request, the local agency which receives the storm water discharge.

12. *Sampling and Analysis* Exemptions and Reductions

A facility operator who qualifies for sampling and analysis exemptions, as described below in Section B.12.a.i., or who qualifies for reduced sampling and analysis, as described below in Section B.12.b., must submit the appropriate certifications and required documentation to the Regional Water Boards prior to the wet season (October 1) and recertify as part of the Annual Report submittal. A facility operator that qualifies for either the Regional Water Board or local agency certification programs, as described below in Section B.12.a.ii. and iii., shall submit certification and documentation in accordance with the requirements of those programs. Facility operators who provide certifications in accordance with this Section are still required to comply with all other monitoring program and reporting requirements. Facility operators shall prepare and submit their certifications using forms and instructions provided by the State Water Board, Regional Water Board, or local agency or shall submit their information on a form that contains equivalent information. Facility operators whose facility no longer meets the certification conditions must notify the Regional Water Boards (and local agency) within 30 days and immediately comply with the Section B.5. sampling and analysis requirements. Should a Regional Water Board (or local agency) determine that a certification does not meet the conditions set forth below, facility operators must immediately comply with the Section B.5. sampling and analysis requirements.

a. Sampling and Analysis Exemptions

A facility operator is not required to collect and analyze samples in accordance with Section B.5. if the facility operator meets all of the conditions of one of the following certification programs:

i. No Exposure Certification (NEC)

This exemption is designed primarily for those facilities where all industrial activities are conducted inside buildings and where all materials stored and handled are not exposed to storm water. To qualify for this exemption, facility operators must certify that their facilities meet all of the following conditions:

(1) All prohibited non-storm water discharges have been eliminated or otherwise permitted.

(2) All authorized non-storm water discharges have been identified and addressed in the SWPPP.

(3) All areas of past exposure have been inspected and cleaned, as appropriate.

(4) All significant materials related to industrial activity (including waste materials) are not exposed to storm water or authorized non-storm water discharges.

(5) All industrial activities and industrial equipment are not exposed to storm water or authorized non-storm water discharges.

(6) There is no exposure of storm water to significant materials associated with industrial activity through other direct or indirect pathways such as from industrial activities that generate dust and particulates.

(7) There is periodic re-evaluation of the facility to ensure conditions (1), (2), (4), (5), and (6) above are continuously met. At a minimum, re-evaluation shall be conducted once a year.

ii. Regional Water Board Certification Programs

The Regional Water Board may grant an exemption to the Section B.5. Sampling and Analysis Requirements if it determines a facility operator has met the conditions set forth in a Regional Water Board certification program. Regional Water Board certification programs may include conditions to (1) exempt facility operators whose facilities infrequently discharge storm water to waters of the United States, and (2) exempt facility operators

that demonstrate compliance with the terms and conditions of this General Permit.

iii. Local Agency Certifications

A local agency may develop a local agency certification program. Such programs must be approved by the Regional Water Board. An approved local agency program may either grant an exemption

from the Section B.5. Sampling and Analysis Requirements or reduce the frequency of sampling if it determines that a facility operator has demonstrated compliance with the terms and conditions of this General Permit.

b. Sampling and Analysis Reduction

i. A facility operator may reduce the number of sampling events required to be sampled for the remaining term of this General Permit if the facility operator provides certification that the following conditions have been met:

(1) The facility operator has collected and analyzed samples from a minimum of six storm events from all required drainage areas;

(2) All prohibited non-storm water discharges have been eliminated or otherwise permitted;

(3) The facility operator demonstrates compliance with the terms and conditions of the General Permit for the previous two years (i.e., completed Annual Reports, performed visual observations, implemented appropriate BMPs, etc.);

(4) The facility operator demonstrates that the facility's storm water discharges and authorized non-storm water discharges do not contain significant quantities of pollutants; and

(5) Conditions (2), (3), and (4) above are expected to remain in effect for a minimum of one year after filing the certification.

ii. Unless otherwise instructed by the Regional Water Board, facility operators shall collect and analyze samples from two additional storm events (or one additional storm event when certification filed for the wet season beginning October 1, 2001) during the remaining term of this General Permit in accordance with Table C below. Facility operators shall collect samples of the first

storm event of the wet season. Facility operators that do not collect samples from the first storm event of the wet season shall collect samples from another storm event during the same wet season. Facility operators that do not collect a sample in a required wet season shall collect the sample from another storm event in the next wet season. Facility operators shall explain in the Annual Report why the first storm event of a wet season was not sampled or a sample was not taken from any storm event in accordance with the Table C schedule.

Table C
REDUCED MONITORING SAMPLING SCHEDULE

Facility Operator Filing Sampling Reduction Certification By	Samples Shall be Collected and Analyzed in These Wet Seasons	
	Sample 1	Sample 2
Oct. 1, 1997	Oct. 1, 1997-May 31, 1998	Oct. 1, 1999-May 31, 2000
Oct. 1, 1998	Oct. 1, 1998-May 31, 1999	Oct. 1, 2000-May 31, 2001
Oct. 1, 1999	Oct. 1, 1999-May 31, 2000	Oct. 1, 2001-May 31, 2002
Oct. 1, 2000	Oct. 1, 2000-May 31, 2001	Oct. 1, 2001-May 31, 2002
Oct. 1, 2001	Oct. 1, 2001-May 31, 2002	-

13. *Records*

Records of all storm water monitoring information and copies of all reports (including the Annual Reports) required by this General Permit shall be retained for a period of at least five years. These records shall include:

a. The date, place, and time of site inspections, sampling, visual observations, and/or measurements;

b. The individual(s) who performed the site inspections, sampling, visual observations, and or measurements;

c. Flow measurements or estimates (if required by Section B.6);

d. The date and approximate time of analyses;

e. The individual(s) who performed the analyses;

f. Analytical results, method detection limits, and the analytical techniques or methods used;

g. Quality assurance/quality control records and results;

h. Non-storm water discharge inspections and visual observations and storm water discharge visual observation records (see Sections B.3. and 4.);

i. Visual observation and sample collection exception records (see Section B.5.a, 7.d, 8, and 12.b.ii.);
j. All calibration and maintenance records of on-site instruments used;

k. All Sampling and Analysis Exemption and Reduction certifications and supporting documentation (see Section B.12);

l. The records of any corrective actions and follow-up activities that resulted from the visual observations.

14. *Annual Report*

All facility operators shall submit an Annual Report by July 1 of each year to the Executive Officer of the Regional Water Board responsible for the area in which the facility is located and to the local agency (if requested).

The report shall include a summary of visual observations and sampling results, an evaluation of the visual observation and sampling and analysis results, laboratory reports, the Annual Comprehensive Site Compliance Evaluation Report required in Section A.9., an explanation of why a facility did not implement any activities required by the General Permit (if not already included in the Evaluation Report), and records specified in Section B.13.i. The method detection limit of each analytical parameter shall be included. Analytical results that are less than the method detection limit shall be reported as "less than the method detection limit." The Annual Report shall be signed and certified in accordance with Standard Provisions 9. and 10. of Section C of this General Permit. Facility operators shall prepare and submit their Annual Reports using the annual report forms provided by the State Water Board or Regional Water Board or shall submit their information on a form that contains equivalent information.

15. *Group Monitoring*

Facility operators may participate in group monitoring as described below. A facility operator that participates in group monitoring shall develop and implement a written site-specific SWPPP and monitoring program in accordance with the General Permit and must satisfy any group monitoring requirements. Group monitoring shall be subject to the following requirements:

a. A group monitoring plan (GMP) shall be developed and implemented by a group leader representing a group of

similar facility operators regulated by this General Permit or by a local agency which holds an NPDES permit (local agency permittee) for a municipal separate storm sewer system. GMPs with participants that discharge storm water within the boundaries of a single Regional Water Board shall be approved by that Regional Water Board. GMPs with participants that discharge storm water within the boundaries of multiple Regional Water Boards shall be approved by the State Water Board. The State Water Board and/or Regional Water Board(s) may disapprove a facility's participation in a GMP or require a GMP participant to conduct additional monitoring activities.

b. Each GMP participant shall collect and analyze samples from at least two storm events in accordance with Section B.5. over the five-year period of this General Permit. The two storm event minimum applies to new and existing members. The group leader or local agency permittee shall schedule sampling to meet the following conditions: (i) to evenly distribute the sample collection over the five-year term of this General Permit, and (ii) to collect samples from the two storm events at each participant's facility in different and non-consecutive wet seasons. New participants who join in Years 4 and 5 of this General Permit are not subject to Condition (ii) above. Group leaders shall explain in the annual Group Evaluation Report why any scheduled samples were not collected and reschedule the sampling so that all required samples are collected during the term of this General Permit.

c. The group leader or local agency permittee must have the appropriate resources to develop and implement the GMP. The group leader or local agency permittee must also have the authority to terminate any participant who is not complying with this General Permit and the GMP.

d. The group leader or local agency permittee is responsible for:

   i. Developing, implementing, and revising the GMP;

   ii. Developing and submitting an annual Group Evaluation Report to the State Water Board and/or Regional Water Board by August 1 of each year that includes:

      (1) An evaluation and summary of all group monitoring data,

      (2) An evaluation of the overall performance of the GMP participants in complying with this General Permit and the GMP,

(3) Recommended baseline and site-specific BMPs that should be considered by each participant based upon Items (1) and (2) above, and

(4) A copy of each evaluation report and recommended BMPs as required in Section B.15.d.v. below.

iii. Recommending appropriate BMPs to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges;

iv. Assisting each participant in completing their Annual Comprehensive Site Compliance Evaluation and Annual Report;

v. Conducting a minimum of two on-site inspections of each participant's facility (it is recommended that these inspections be scheduled during the Annual Comprehensive Site Compliance Evaluation) during the term of this General Permit to evaluate the participant's compliance with this General Permit and the GMP, and to recommend any additional BMPs necessary to achieve compliance with this General Permit. Participants that join in Years 4 and 5 shall be scheduled for one evaluation. A copy of the evaluation and recommended BMPs shall be provided to the participants;

vi. Submitting a GMP (or revisions, as necessary), to the appropriate Regional Water Board(s) and State Water Board no later than September 1, 1997 (or August 1 in subsequent years). Once approved, a group leader or local agency permittee shall submit a letter of intent by August 1 of each year to continue the approved GMP. The letter of intent must include a roster of participants, participant's Waste Discharge Identification number (WDID#), updated sampling schedules, and any other revisions to the GMP;

vii. Revising the GMP as instructed by the Regional Water Board or the State Water Board; and

viii. Providing the State Water Board and/or Regional Water Board with quarterly updates of any new or deleted participants and corresponding changes in the sampling and inspection schedule.

e. The GMP shall:

i. Identify the participants of the GMP by name, location, and WDID number;

ii. Include a narrative description summarizing the industrial activities of participants of the GMP and explain why the participants, as a whole, have sufficiently similar industrial activities and BMPs to be covered by a group monitoring plan;

iii. Include a list of typical potential pollutant sources associated with the group participant's facilities and recommended baseline BMPs to prevent or reduce pollutants associated with industrial activity in the storm water discharges and authorized non-storm water discharges;

iv. Provide a five-year sampling and inspection schedule in accordance with Subsections b. and d.v. above.

v. Identify the pollutants associated with industrial activity that shall be analyzed at each participant's facility in accordance with Section B.5. The selection of these pollutants shall be based upon an assessment of each facility's potential pollutant sources and likelihood that pollutants associated with industrial activity will be present in storm water discharges and authorized non-storm water discharges in significant quantities.

f. Sampling and analysis shall be conducted in accordance with the applicable requirements of this Section.

g. Unless otherwise instructed by the Regional Water Board or the State Water Board Executive Director, the GMPs shall be implemented at the beginning of the wet season (October 1).

h. All participants in an approved GMP that have not been selected to sample in a particular wet season are required to comply with all other monitoring program and reporting requirements of this Section including the submittal of an Annual Report by July 1 of each year to the appropriate Regional Water Board.

i. GMP participants subject to Federal storm water effluent limitation guidelines must perform the monitoring described in Section B.6. and submit the results of the monitoring to the appropriate Regional Water Board within the facility operator's Annual Report.

j. GMPs and Group Evaluation Reports should be prepared in accordance with State Water Board (or Regional Water Board) guidance.

k. GMP participants may receive Sampling and Analysis Reduction sampling credit in accordance with the following conditions:

i. Current or prior participants (group participants) of approved GMPs, who have not collected and analyzed samples from six storm events as required in Section B.7.b.i.(1), may substitute credit earned through participation in a GMP for up to four of the six required storm events. Credits for GMP participation shall be calculated as follows:

(1) Credit may only be earned in years of participation where the GMP participant was not scheduled to sample and the GMP was approved.

(2) One credit will be earned for each year of valid GMP participation.

(3) One additional credit may be earned for each year the overall GMP sample collection performance is greater than 75 percent.

ii. GMP participants substituting credit as calculated above shall provide proof of GMP participation and certification that all the conditions in Section B.12.b.i. have been met. GMP participants substituting credit in accordance with Section B.15.k.i.(3) shall also provide GMP sample collection performance documentation.

iii. GMP participants that qualify for Sampling and Analysis Reduction and have already sampled a storm event after October 1, 1997 shall only be required to sample one additional storm event during the remainder of this General Permit in accordance with the "Sample 2" schedule (or "Sample 1" schedule when certification filed for the wet season beginning October 1, 2001) in Table C of this Section.

n. Group leaders shall furnish, within 60 days of receiving a request from the State Water Board or Regional Water Board, any GMP information and documentation necessary to verify the Section B.15.k. sampling credits. Group leaders may also provide this information and documentation to the group participants.

16. *Watershed Monitoring Option*

Regional Water Boards may approve proposals to substitute watershed monitoring for some or all of the requirements of this Section if the Regional Water Board finds that the watershed monitoring will provide substantially similar monitoring information in evaluating facility operator compliance with the requirements of this General Permit.

TABLE D
ADDITIONAL ANALYTICAL PARAMETERS

Subsector	SIC	Activity Represented	Parameters
SECTOR A. TIMBER PRODUCTS			
A1	2421	General Sawmills and Planing Mills	**COD;TSS;Zn**
A2	2491	Wood Preserving	**As;Cu**
A3	2411	Log Storage and Handling	**TSS**
A4	2426	Hardwood Dimension and Flooring Mills	**COD;TSS**
A4	2429	Special Product Sawmills, Not Elsewhere Classified	**COD;TSS**
A4	243X	Millwork, Veneer, Plywood, and Structural Wood	**COD;TSS**
A4	(except 2434--Wood Kitchen Cabinet Manufacturers)		
A4	244X	Wood Containers	**COD;TSS**
A4	245X	Wood Buildings and Mobile Homes	**COD;TSS**
A4	2493	Reconstituted Wood Products	**COD;TSS**
A4	2499	Wood Products, Not Elsewhere Classified	
SECTOR B. PAPER AND ALLIED PRODUCTS MANUFACTURING			
B1	261X	Pulp Mills	
B2	262X	Paper Mills	
B3	263X	Paperboard Mills	**COD**
B4	265X	Paperboard Containers and Boxes	
B5	267X	Converted Paper and Paperboard Products, Except Containers and Boxes	
SECTOR C. CHEMICAL AND ALLIED PRODUCTS MANUFACTURING			
C1	281X	Industrial Inorganic Chemicals	**Al;Fe;N+N**
C2	282X	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic, and Other Manmade Fibers Except Glass	**Zn**
C3	283X	Drugs	
C4	284X	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations	**N+N;Zn**
C5	285X	Paints, Varnishes, Lacquers, Enamels, and Allied Products	
C6	286X	Industrial Organic Chemicals	
C7	287X	Nitrogenous and Phosphatic Basic Fertilizers, Mixed Fertilizer, Pesticides, and Other Agricultural Chemicals	**Fe;N+N;Pb;Zn;P**
C8	289X	Miscellaneous Chemical Products	
	3952	Inks and Paints, Including China Painting Enamels, India Ink, (limited to list) Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints, and Artist's Watercolors	
SECTOR D. ASPHALT PAVING/ROOFING MATERIALS MANUFACTURERS AND LUBRICANT MANUFACTURERS			
D1	295X	Asphalt Paving and Roofing Materials	**TSS**
D2	2992	Lubricating Oils and Greases	

Parameter Names

Al - Aluminum	Cd - Cadmium	Cu - Copper	Mg - Magnesium	BOD - Biochemical Oxygen Demand
As - Arsenic	CN - Cyanide	Fe - Iron	Ag - Silver	N + N - Nitrate & Nitrite Nitrogen
NH_3- Ammonia	Hg - Mercury	P - Phosphorus	Se - Selenium	Pb - Lead
Zn - Zinc	TSS -Total Suspended Solids	COD - Chemical Oxygen Demand		

Subsector	SIC	Activity Represented	Parameters

SECTOR E. GLASS, CLAY, CEMENT, CONCRETE, AND GYPSUM PRODUCT MANUFACTURING

E1	3211	Flat Glass	
E1	322X	Glass and Glassware, Pressed or Blown	
E1	323X	Glass Products Made of Purchased Glass	
E2	3241	Hydraulic Cement	
E3	325X	Structural Clay Products	**Al**
E3	326X	Pottery and Related Products	**Al**
E3	3297	Non-Clay Refractories	**Al**
E4	327X	Concrete, Gypsum, and Plaster Products (Except Lime) (except 3274).	**TSS;Fe**
E4	3295	Minerals and Earths, Ground, or Otherwise Treated	**TSS;Fe**

SECTOR F. PRIMARY METALS

F1	331X	Steel Works, Blast Furnaces, Rolling & Finishing Mill	**Al;Zn**
F2	332X	Iron and Steel Foundries	**Al;TSS;Cu;Fe;Zn**
F3	333X	Primary Smelting and Refining of Nonferrous Metals	
F4	334X	Secondary Smelting and Refining of Nonferrous Metals	
F5	335X	Rolling, Drawing, and Extruding of Nonferrous Metals	**Cu;Zn**
F6	336X	Nonferrous Foundries (Castings)	**Cu;Zn**
F7	339X	Miscellaneous Primary Metal Products	

SECTOR G. METAL MINING (ORE MINING AND DRESSING) EXCEPT INACTIVE METAL MINING ACTIVITIES ON FEDERAL LANDS WHERE AN OPERATOR CANNOT BE IDENTIFIED

G1	101X	Iron Ores	
G2	102X	Copper Ores	**TSS;COD;N+N**
G3	103X	Lead and Zinc Ores	
G4	104X	Gold and Silver Ores	
G5	106X	Ferroalloy Ores, Except Vanadium	
G6	108X	Metal Mining Services	
G7	109X	Miscellaneous Metal Ores	

SECTOR H. COAL MINES AND COAL MINING-RELATED FACILITIES

NA	12XX	Coal Mines and Coal Mining-Related Facilities	**TSS;Al;Fe**

SECTOR I. COAL MINES AND COAL MINING-RELATED FACILITIES

I1	131X	Crude Petroleum and Natural Gas	
I2	132X	Natural Gas Liquids	
I3	138X	Oil and Gas Field Services	

SECTOR J. MINERAL MINING AND DRESSING EXCEPT INACTIVE MINERAL MINING ACTIVITIES OCCURRING ON FEDERAL LANDS WHERE AN OPERATOR CANNOT BE IDENTIFIED

J1	141X	Dimension Stone	**TSS**
J1	142X	Crushed and Broken Stone, Including Rip Rap	**TSS**
J1	148X	Nonmetallic Minerals, Except Fuels	**TSS**
J2	144X	Sand and Gravel	**TSS;N+N**
J3	145X	Clay, Ceramic, and Refractory Materials	
J4	147X	Chemical and Fertilizer Mineral Mining	
J4	149X	Miscellaneous Nonmetallic Minerals, Except Fuels	

Subsector	SIC	Activity Represented	Parameters
SECTOR K. HAZARDOUS WASTE TREATMENT STORAGE OR DISPOSAL FACILITIES			
NA	4953	Hazardous Waste Treatment Storage or Disposal	**NH_3;Mg;COD;As Cd;CN;Pb Hg;Se;**Ag
SECTOR L. LANDFILLS AND LAND APPLICATION SITES			
NA	4953	Landfills and Land Application Sites That Receive or Have Received Industrial Wastes, Except Inactive Landfills or Land Applications Sites Occurring on Federal Lands Where an Operator Cannot be Identified	**TSS;Fe**
SECTOR M. AUTOMOBILE SALVAGE YARDS			
NA	5015	Facilities Engaged in Dismantling or Wrecking Used Motor Vehicles for Parts Recycling or Resale and for Scrap	**TSS;Fe;Pb;Al**
SECTOR N. SCRAP RECYCLING FACILITIES			
NA	5093	Processing, Reclaiming, and Wholesale Distribution of Scrap and Waste Materials	**TSS;Fe;Pb Al;Cu;Zn;COD**
SECTOR O. STEAM ELECTRIC GENERATING FACILITIES			
NA	4911	Steam Electric Power Generating Facilities	**Fe**
SECTOR P. LAND TRANSPORTATION FACILITIES THAT HAVE VEHICLE AND EQUIPMENT MAINTENANCE SHOPS AND/OR EQUIPMENT CLEANING OPERATIONS			
P1	40XX	Railroad Transportation	
P2	41XX	Local and Highway Passenger Transportation	
P3	42XX	Motor Freight Transportation and Warehousing	
P4	43XX	United States Postal Service	
P5	5171	Petroleum Bulk Stations and Terminals	
SECTOR Q. WATER TRANSPORTATION FACILITIES THAT HAVE VEHICLE (VESSEL) & EQUIPMENT MAINTENANCE SHOPS AND/OR EQUIPMENT CLEANING OPERATIONS			
NA	44XX	Water Transportation	**Al;Fe;Pb;Zn**
SECTOR R. SHIP AND BOAT BUILDING OR REPAIRING YARDS			
NA	373X	Ship and Boat Building or Repairing Yards	
SECTOR S. AIR TRANSPORTATION FACILITIES			
NA	45XX	Air Transportation Facilities That Have Vehicle Maintenance Ships, Material Handing Facilities, Equipment Cleaning Operations, or Airport and/or Aircraft Deicing/Anti-icing Operations	**BOD;COD;NH_3;pH**

Subsector	SIC	Activity Represented	Parameters
SECTOR T. TREATMENT WORKS			
NA	4952	Treatment Works Treating Domestic Sewage or Any Other Sewage Sludge or Wastewater Treatment Device or System Used in the Storage, treatment, recycling, or Reclamation of Municipal or Domestic Sewage with a Design Flow of 1.0 MGD or More or Required to Have an Approved Pretreatment Program	
SECTOR U. FOOD AND KINDRED PRODUCTS			
U1	201X	Meat Products	
U2	202X	Dairy Products	
U3	203X	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties	
U4	204X	Grain Mill Products	**TSS**
U5	205X	Bakery Products	
U6	206X	Sugar and Confectionery Products	
U7	207X	Fats and Oils	**BOD;COD;TSS;N+N**
U8	208X	Beverages	
U9	209X	Miscellaneous Food Preparations and Kindred Products	
NA	21XX	Tobacco Products	
SECTOR V. TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING			
V1	22XX	Textile Mill Products	
V2	23XX	Apparel and Other Finished Products Made From Fabrics and Similar Materials	
SECTOR W. FURNITURE AND FIXTURES			
NA	25XX	Furniture and Fixtures	
NA	2434	Wood Kitchen Cabinets	
SECTOR X. PRINTING AND PUBLISHING			
NA	2732	Book Printing	
NA	2752	Commercial Printing, Lithographic	
NA	2754	Commercial Printing, Gravure	
NA	2759	Commercial Printing, Nor Elsewhere Classified	
NA	2796	Platemaking and Related Services	
SECTOR Y. RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISC. MANUFACTURING INDUSTRIES			
Y1	301X	Tires and Inner Tubes	**Zn**
Y1	302X	Rubber and Plastics Footwear	**Zn**
Y1	305X	Gaskets, Packing, and Sealing Devices and Rubber and Plastics Hose and Belting	**Zn**
Y1	306X	Fabricated Rubber Products, Not Elsewhere Classified	**Zn**
Y2	308X	Miscellaneous Plastics Products	

Subsector	SIC	Activity Represented	Parameters
Y2	393X	Musical Instruments	
Y2	394X	Dolls, Toys, Games, and Sporting and Athletic Goods	
Y2	395X	Pens, Pencils, and Other Artists' Materials	
Y2	396X	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal	
Y2	399X	Miscellaneous Manufacturing Industries	
SECTOR Z. LEATHER TANNING AND FINISHING			
NA	311X	Leather Tanning and Finishing	
NA	NA	Facilities that Make Fertilizer Solely From Leather Scraps and Leather Dust	
SECTOR AA. FABRICATED METAL PRODUCTS			
AA1	3429	Hardware, Not Elsewhere Classified	**Zn;N+N;Fe;Al**
AA1	3441	Fabricated Structural Metal	**Zn;N+N;Fe;Al**
AA1	3442	Metal Doors, Sash, Frames, Molding, and Trim	**Zn;N+N;Fe;Al**
AA1	3443	Fabricated Plate Work (Boiler Shops)	**Zn;N+N;Fe;Al**
AA1	3444	Sheet Metal Work	**Zn;N+N;Fe;Al**
AA1	3451	Screw Machine Products	**Zn;N+N;Fe;Al**
AA1	3452	Bolts, Nuts, Screws, Rivets, and Washers	**Zn;N+N;Fe;Al**
AA1	3462	Iron and Steel Forgings	**Zn;N+N;Fe;Al**
AA1	3471	Electroplating, Plating, Polishing, Anodizing, and Coloring	**Zn;N+N;Fe;Al**
AA1	3494	Valves and Pipe Fittings, Not Elsewhere Classified	**Zn;N+N;Fe;Al**
AA1	3496	Miscellaneous Fabricated Wire Products.	**Zn;N+N;Fe;Al**
AA1	3499	Fabricated Metal Products, Not Elsewhere Classified	**Zn;N+N;Fe;Al**
AA1	391X	Jewelry, Silverware, and Plated Ware	**Zn;N+N;Fe;Al**
AA2	3479	Coating, Engraving, and Allied Services	**Zn;N+N**
SECTOR AB. TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY			
NA	35XX	Industrial and Commercial Machinery (except 357X Computer and Office Equipment)	
NA	37XX	Transportation Equipment (except 373X Ship and Boat Building and Repairing	
SECTOR AC. ELECTRONIC, ELECTRICAL. PHOTOGRAPHIC, AND OPTICAL GOODS			
NA	36XX	Electronic and Other Electrical Equipment and Components, Except Computer Equipment	
NA	38XX	Measuring, Analyzing, and Controlling Instruments; Photographic, Medical, and Optical Goods; Watches and Clocks	
NA	357X	Computer and Office Equipment	

Section C: STANDARD PROVISIONS

1. Duty to Comply

The facility operator must comply with all of the conditions of this General Permit. Any General Permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for (a) enforcement action for (b) General Permit termination, revocation and reissuance, or modification or (c) denial of a General Permit renewal application.

The facility operator shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the facility operator for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition.

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition, and the facility operator so notified.

3. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a facility operator in an enforcement action that it would have been necessary to halt or reduce the general permitted activity in order to maintain compliance with the conditions of this General Permit.

4. Duty to Mitigate

The facility operator shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The facility operator at all times shall properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the facility operator to achieve compliance with the conditions of this General Permit and with the requirements of storm water pollution prevention plans (SWPPPs). Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a facility operator when necessary to achieve compliance with the conditions of this General Permit.

6. Property Rights

This General Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

7. Duty to Provide Information

The facility operator shall furnish the Regional Water Quality Control Board (Regional Water Board), State Water Resources Control Board (State Water Board), U.S. Environmental Protection Agency (U.S. EPA), or local storm water management agency, within a reasonable time specified by the agencies, any requested information to determine compliance with this General Permit. The facility operator shall also furnish, upon request, copies of records required to be kept by this General Permit.

8. Inspection and Entry

The facility operator shall allow the Regional Water Board, State Water Board, U.S. EPA, and local storm water management agency, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the facility operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this General Permit;

b. Have access to and copy at reasonable times any records that must be kept under the conditions of this General Permit;

c. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) that are related to or may impact storm water discharge or authorized non-storm water discharge; and

d. Conduct monitoring activities at reasonable times for the purpose of ensuring General Permit compliance.

9. Signatory Requirements

a. All Notices of Intent (NOIs) submitted to the State Water Board shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (b) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. The principal executive officer of a Federal agency includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

b. All reports, certifications, or other information required by the General Permit or requested by the Regional Water Board, State Water Board, U.S. EPA, or local storm water management agency shall be signed by a person described above or by a duly authorized representative. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above and retained as part of the SWPPP.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for named position.)

(3) If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be attached to the SWPPP prior to submittal of any reports, certifications, or information signed by the authorized representative.

10. Certification

Any person signing documents under Provision 9. above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Reporting Requirements

a. Planned changes: The facility operator shall give advance notice to the Regional Water Board and local storm water management agency of any planned physical alteration or additions to the general permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged.

b. Anticipated noncompliance: The facility operator will give advance notice to the Regional Water Board and local storm water management agency of any planned changes at the permitted facility which may result in noncompliance with General Permit requirements.

c. Compliance schedules: Reports of compliance or noncompliance with or any progress reports on interim and final requirements contained in any compliance schedule of this General Permit shall be submitted no later than 14 days following each scheduled date.

d. Noncompliance reporting: The facility operator shall report any noncompliance at the time monitoring reports are submitted. The written submission shall contain (1) a description of the noncompliance and its cause; (2) the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and (3) steps taken or planned to reduce and prevent recurrence of the noncompliance.

12. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the facility operator from any responsibilities, liabilities, or penalties to which the facility operator is or may be subject under Section 311 of the CWA.

13. Severability

The provisions of this General Permit are severable; and if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

14. Reopener Clause

This General Permit may be modified, revoked, and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 CFR 122.62, 122.63, 122.64, and 124.5. This General Permit may be reopened to modify the provisions regarding authorized non-storm water discharges specified in Section D. Special Conditions.

15. Penalties for Violations of General Permit Conditions.

a. Section 309 of the CWA provides significant penalties for any person who violates a General Permit condition

implementing Sections 301, 302, 306, 307 308, 318, or 405 of the CWA, or any General Permit condition or limitation implementing any such section in a General Permit issued under Section 402. Any person who violates any General Permit condition of this General Permit is subject to a civil penalty not to exceed $25,000 per day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties in some cases greater than those under the CWA.

16. Availability

A copy of this General Permit shall be maintained at the facility and be available at all times to the appropriate facility personnel and to Regional Water Board and local agency inspectors.

17. Transfers

This General Permit is not transferable from one facility operator to another facility operator nor may it be transferred from one location to another location. A new facility operator of an existing facility must submit an NOI in accordance with the requirements of this General Permit to be authorized to discharge under this General Permit.

18. Continuation of Expired General Permit

This General Permit continues in force and effect until a new general permit is issued or the State Water Board rescinds the General Permit. Facility operators authorized to discharge under the expiring general permit are required to file an NOI to be covered by the reissued General Permit.

19. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both.

FACILITIES COVERED BY THIS GENERAL PERMIT

Industrial facilities include Federal, State, municipally owned, and private facilities from the following categories:

1. FACILITIES SUBJECT TO STORM WATER EFFLUENT LIMITATIONS GUIDELINES, NEW SOURCE PERFORMANCE STANDARDS, OR TOXIC POLLUTANT EFFLUENT STANDARDS (40 Code of Federal Regulations (CFR) SUBCHAPTER N). Currently, categories of facilities subject to storm water effluent limitations guidelines are Cement Manufacturing (40 CFR Part 411), Feedlots (40 CFR Part 412), Fertilizer Manufacturing (40 CFR Part 418), Petroleum Refining (40 CFR Part 419), Phosphate Manufacturing (40 CFR Part 422), Steam Electric (40 CFR Part 423), Coal Mining (40 CFR Part 434), Mineral Mining and Processing (40 CFR Part 436), Ore Mining and Dressing (40 CFR Part 440), and Asphalt Emulsion (40 CFR Part 443).

2. MANUFACTURING FACILITIES: Standard Industrial Classifications (SICs) 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285) 29, 311, 32 (except 323), 33, 3441, and 373.

3. OIL AND GAS/MINING FACILITIES: SICs 10 through 14 including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(l) because of performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Act (SMCRA) authority has been released, or except for area of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990); oil and gas exploration, production, processing, or treatment operations; or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mined sites that are not being actively mined but which have an identifiable facility operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

4. HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES: Includes those operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act (RCRA).

5. LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS: Sites that receive or have received industrial waste from any of

the facilities covered by this General Permit, sites subject to regulation under Subtitle D of RCRA, and sites that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance of five acres or more).

6. RECYCLING FACILITIES: SICs 5015 and 5093. These codes include metal scrapyards, battery reclaimers, salvage yards, motor vehicle dismantlers and wreckers, and recycling facilities that are engaged in assembling, breaking up, sorting, and wholesale distribution of scrap and waste material such as bottles, wastepaper, textile wastes, oil waste, etc.

7. STEAM ELECTRIC POWER GENERATING FACILITIES: Includes any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.

8. TRANSPORTATION FACILITIES: SICs 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified herein that are associated with industrial activity.

9. SEWAGE OR WASTEWATER TREATMENT WORKS: Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of one million gallons per day or more or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

10. MANUFACTURING FACILITIES WHERE INDUSTRIAL MATERIALS, EQUIPMENT, OR ACTIVITIES ARE <u>EXPOSED</u> TO STORM WATER: SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-4225.

STORM WATER CONTACTS FOR
THE STATE AND REGIONAL WATER BOARDS

See Storm Water Contacts at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/contact.shtml

NOTICE OF INTENT (NOI) INSTRUCTIONS

TO COMPLY WITH STATE WATER RESOURCES CONTROL BOARD WATER QUALITY ORDER NO. 97-03-DWQ NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT NO. CAS000001

Who Must Submit

The facility operator must submit an NOI for each industrial facility that is required by U.S. Environmental Protection Agency (U.S.EPA) regulations to obtain a storm water permit. The required industrial facilities are listed in Attachment 1 of the General Permit and are also listed in 40 Code of Federal Regulations Section 122.26(b)(14).

The facility operator is typically the owner of the business or operation where the industrial activities requiring a storm water permit occur. The facility operator is responsible for all permit related activities at the facility.

Where operations have discontinued and significant materials remain on site (such as at closed landfills), the landowner may be responsible for filing an NOI and complying with this General Permit. Landowners may also file an NOI for a facility if the landowner, rather than the facility operator, is responsible for compliance with this General Permit.

How and Where to Apply

The completed NOI form, a site map, and appropriate fee must be mailed to the State Water Resources Control Board (State Water Board) at the following address:

State Water Resources Control Board
Division of Water Quality
P.O. Box 1977
Sacramento, CA 95812-1977
Attn: Storm Water Permitting Unit

Please Note: Do not send the original or copies of the NOI submittal to the Regional Water Quality Control Board (Regional Water Board). The original NOI will be forwarded to the Regional Water Board after processing.

Do not send a copy of your Storm Water Pollution Prevention Plan (SWPPP) with your NOI submittal. Your SWPPP is to be kept on site and made available for review upon request.

When to Apply

Facility operators of existing facilities must file an NOI in accordance with these instructions by March 30, 1992. Facility

operators of new facilities (those beginning operations after March 30, 1992) must file an NOI in accordance with these instructions at least 14 days prior to the beginning of operations.

Once the completed NOI, site map, and appropriate fee have been submitted to the State Water Board, your NOI will be processed and you will be issued a receipt letter with a Waste Discharge Identification (WDID) Number. Please refer to this number when you contact either the State or Regional Water Boards.

Fees

The total annual fee is $1632.00. Checks should be made payable to: SWRCB

Change of Information

If the information provided on the NOI or site map changes, you should report the changes to the State Water Board using an NOI form. Section I of the line-by-line instructions includes information regarding changes to the NOI.

Questions

If you have any questions completing the NOI, please call the appropriate Regional Water Board (Attachment 2) or the State Water Board at (916) 341-5538.

NOI LINE-BY-LINE INSTRUCTIONS

Please type or print your responses on the NOI. Please complete the NOI form in its entirety and sign the certification.

Section I--NOI STATUS

Check box "A" if this is a new NOI registration.

Check box "B" if you are reporting changes to the NOI (e.g., new contact person, phone number, mailing address). Include the facility WDID #. Highlight all the information that has been changed.

Please note that a change of information **does not** apply to a change of facility operator or a change in the location of the facility. These changes require a Notice of Termination (NOT) and submittal of a new NOI and annual fee. Contact the State Water Board or Regional Water Boards for more information on the NOT Form and instructions.

Regardless of whether you are submitting a new or revised NOI, you must complete the NOI in its entirety and the NOI must be signed.

Section II--Facility Operator Information

Part A: The facility operator is the legal entity that is responsible for all permit related compliance activities at the facility. In most cases, the facility operator is the owner of the business or operation where the industrial activity occurs. Give the legal name and the address of the person, firm, public organization, or any other entity that is responsible for complying with the General Permit.

Part B: Check the box that indicates the type of operation.

Section III--Facility Site Information

Part A: Enter the facility's official or legal name and provide the address. Facilities that do not have a street address must provide cross-streets or parcel numbers. Do not include a P.O. Box address in Part A.

Part B: Enter the mailing address of the facility if different than Part A. This address may be a P.O. Box.

The contact person should be the plant or site manager who is familiar with the facility and responsible for overseeing compliance of the General Permit requirements.

Part C: Enter the total size of the facility in either acres or square feet. Also include the percentage of the site that is impervious (areas that water cannot soak into the ground, such as concrete, asphalt, and rooftops).

Part D: Determine the Standard Industrial Classification (SIC) code which best identifies the industrial activity that is taking place at the facility. This information can be obtained by referring to the Standard Industrial Classification Manual prepared by the Federal Office of Management and Budget which is available at public libraries. The code you determine should identify the industrial activity that requires you to submit the NOI. (For example, if the business is high school education and the activity is school bus maintenance, the code you choose would be bus maintenance, not education.) Most facilities have only one code; however, additional spaces are provided for those facilities that have more than one activity.

Part E: Identify the title of the industrial activity that requires you to submit the NOI (e.g., the title of SIC Code 2421 is Sawmills and Planing Mills, General). If you cannot identify the title, provide a description of the regulated activity(s).

Section IV--Address for Correspondence

Correspondence relative to the permit will be mailed occasionally. Check the box which indicates where you would like such correspondence delivered. If you want correspondence sent to another contact person or address different than indicated in Section II or Section III then include the information on an extra sheet of paper.

Section V--Billing Address Information

To continue coverage under the General Permit, the annual fee must be paid. Use this section to indicate where the annual fee invoices should be mailed. Enter the billing address if different than the address given in Sections II or III.

Section VI--Receiving Water Information

Provide the name of the receiving water where storm water discharge flows from your facility. A description of each option is included below.

1. Directly to waters of the United States: Storm water discharges directly from the facility to a river, creek, lake, ocean, etc. Enter the name of the receiving water (e.g., Boulder Creek).

2. Indirectly to waters of the United States: Storm water discharges over adjacent properties or right-of-ways prior to discharging to waters of the United States. Enter the name of the closest receiving water (e.g., Clear Creek).

Section VII--Implementation of Permit Requirements

Parts A and B: Check the boxes that best describe the status of the Storm Water Pollution Prevention Plan (SWPPP) and the Monitoring Program.

Part C: Check yes or no to questions 1 through 4. If you answer no to any question, you need to assign a person to these tasks immediately.

As a permit holder you are required to have an SWPPP and Monitoring Program in place prior to the beginning of facility operations. Failure to do so is in direct violation of the General Permit. Do not send a copy of your SWPPP with your NOI submittal.

Please refer to Sections A and B of the General Permit for additional information regarding the SWPPP and Monitoring Program.

Section VIII--Site Map

Provide a "to scale" drawing of the facility and its immediate surroundings. Include as much detail about the site as possible. At a minimum, indicate buildings, material handling and storage areas, roads, names of adjacent streets, storm water discharge points, sample collection points, and a north arrow. Whenever

possible limit the map to a standard size sheet of paper (8.5" x 11" or 11" x 17"). **Do not send blueprints** unless you are sending one page and it meets the size limits as defined above.

A location map may also be included, especially in cases where the facility is difficult to find, but are not to be submitted as a substitute for the site map. The location map can be created from local street maps and U.S. Geological Survey (USGS) quadrangle maps, etc.

A revised site map must be submitted whenever there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.).

Section IX--Certification

This section should be read by the facility operator. The certification provides assurances that the NOI and site map were completed by the facility operator in an accurate and complete fashion and with the knowledge that penalties exist for providing false information. It also requires the Responsible Party to certify that the provisions in the General Permit will be complied with.

The NOI must be signed by:

For a Corporation: a responsible corporate officer (or authorized individual).

For a Partnership or Sole Proprietorship: a general partner or the proprietor, respectively.

For a Municipality, State, or other non-Federal Public Agency: either a principal executive officer or ranking elected official.

For a Federal Agency: either the chief or senior executive officer of the agency.

State of California
State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH **INDUSTRIAL ACTIVITY** (WQ ORDER No. 97-03-DWQ)
(*Excluding Construction Activities*)

SECTION I. NOI STATUS (please check only one box)

A. [ ] New Permittee B. [ ] Change of Information WDID # |___|___|___|___|___|___|___|___|___|___|___|

SECTION II. FACILITY OPERATOR INFORMATION (See instructions)

A. NAME: Phone:

Mailing Address:

City: State: Zip Code:

Contact Person:

B. OPERATOR TYPE:
(check one) 1.[ ] Private Individual 2.[ ]Business 3.[ ]Municipal 4.[ ]State 5.[ ]Federal 6.[ ]Other

SECTION III. FACILITY SITE INFORMATION

A. FACILITY NAME Phone:

Facility Location: County:

City: State: C I A Zip Code:

B. MAILING ADDRESS:

City: State: Zip Code:

Contact Person:

C. FACILITY INFORMATION (check one)
Total Size of Site: Acres [ ] Sq. Ft. [ ]

Percent of Site Impervious (*including rooftops*) |_____| %

D. SIC CODE(S) OF REGULATED ACTIVITY: E. REGULATED ACTIVITY (*describe each SIC code*)**:**

1. |___|___|___|___|

2. |___|___|___|___|

3. |___|___|___|___|

FOR STATE USE ONLY:

SECTION IV. ADDRESS FOR CORRESPONDENCE

l_l Facility Operator Mailing Address (Section II)	l_l Facility Mailing Address (Section III, B.)	l_l Both

SECTION V. BILLING ADDRESS INFORMATION

SEND BILL TO: [ ]Facility Operator Mailing Address (Section II) [ ]Facility Mailing Address (Section III, B.) [ ]Other (*enter information below*)

Name:		Phone:
Mailing Address:		
City:	State:	Zip Code:
Contact Person:		

SECTION VI. RECEIVING WATER INFORMATION

Your facility's storm water discharges flow: (*check one*) [ ] Directly OR [ ] Indirectly to waters of the United States.

Name of receiving water: _____
(river, lake, stream, ocean, etc.)

SECTION VII. IMPLEMENTATION OF PERMIT REQUIREMENTS

A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (*check one*)
[ ] A SWPPP has been prepared for this facility and is available for review.
[ ] A SWPPP will be prepared and ready for review by (enter date): ____/____/____.

B. MONITORING PROGRAM (check one)
[ ] A Monitoring Program has been prepared for this facility and is available for review.
[ ] A Monitoring Program will be prepared and ready for review by (enter date): ____/____/____.

C. PERMIT COMPLIANCE RESPONSIBILITY
Has a person been assigned responsibility for:

1. Inspecting the facility throughout the year to identify any potential pollution problems? ..... ____YES ____NO
2. Collecting storm water samples and having them analyzed?..... ____YES ____NO
3. Preparing and submitting an annual report by July 1 of each year? ..... ____YES ____NO
4. Eliminating discharges other than storm water (*such as equipment or vehicle wash-water*) into the storm drain?..... ____YES ____NO

SECTION VIII. SITE MAP

I HAVE ENCLOSED A SITE MAP YES[ ] A new NOI submitted without a site map will be rejected.

SECTION IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that I have read the entire General Permit, including all attachments, and agree to comply with and be bound by all of the provisions, requirements, and prohibitions of the permit, including the development and implementation of a Storm Water Pollution Pervention Plan and a Monitoring Program Plan will be complied with."

Printed Name: _____

Signature: _____ Date _____

Title: _____

DEFINITIONS

1. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment measures, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may include any type of pollution prevention and pollution control measure necessary to achieve compliance with this General Permit.

2. Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC. 1251 et seq.

3. "Facility" is a collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

4. "Non-Storm Water Discharge" means any discharge to storm sewer systems that is not composed entirely of storm water.

5. "Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

6. "Significant Quantities" is the volume, concentrations, or mass of a pollutant that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and/or cause or contribute to a violation of any applicable water quality standards for the receiving water.

7. "Significant Spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR 110.10 and 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

8. "Storm water" means storm water runoff, snow melt runoff, and storm water surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

9. "Storm Water Associated with Industrial Activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. For the facilities identified in Categories 1 through 9 of Attachment 1 of this General Permit, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 CFR Part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.

   For the facilities identified in Category 10 of Attachment 1 of this General Permit, the term only includes storm water discharges from all areas listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery <u>are exposed to storm water</u>.

   Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 CFR 122.26(a)(1)(v).

ACRONYM LIST

BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Federal Superfund)
CFR	Code of Federal Regulations
CWA	Clean Water Act
General Permit	General Industrial Activities Storm Water Permit
GMP	Group Monitoring Plan
NEC	No Exposure Certification
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
O&G	Oil and Grease
RCRA	Resource, Conservation, and Recovery Act
Regional Water Board	Regional Water Quality Control Board
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act of 1986
SIC	Standard Industrial Classification
SMCRA	Surface Mining Control and Reclamation Act
SPCC	Spill Prevention Control and Countermeasures
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	U.S. Environmental Protection Agency
WDID	Waste Discharger Identification
WDRs	Waste Discharge Requirements

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Arnold Schwarzenegger
Governor

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE
ACTIVITIES

ORDER NO. 2009-0009-DWQ
NPDES NO**. CAS000002**

This Order was adopted by the State Water Resources Control Board on:	**September 2, 2009**
This Order shall become effective on:	**July 1, 2010**
This Order shall expire on:	**September 2, 2014**

IT IS HEREBY ORDERED, that this Order supersedes Order No. 99-08-DWQ except for enforcement purposes. The Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on September 2, 2009.

AYE: Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

NAY: Chairman Charles R. Hoppin

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board

List of Documents included in this single file saved in pdf format on September 22, 2009:

- Fact Sheet
- Order
- Attachment A – Linear Underground/Overhead Requirements
- Attachment A.1 – LUP Project Type Determination
- Attachment A.2 – LUP Permit Registration Documents
- Attachment B – Permit Registration Documents
- Attachment C – Risk Level 1 Requirements
- Attachment D – Risk Level 2 Requirements
- Attachment E – Risk Level 3 Requirements
- Attachment F – Active Treatment System Requirements
- Appendix 1 – Risk Determination Worksheet and Sediment-related 303d List
- Appendix 2 – Post-Construction Water Balance
- Appendix 2.1 – Post-Construction Water Balance Calculator
- Appendix 3 - Bioassessment Monitoring Guidelines
- Appendix 4 – Adopted/Implemented Sediment and Non-sediment TMDLs
- Appendix 5 – Glossary
- Appendix 6 - Acronym List
- Appendix 7 – State and Regional Water Board Contacts

Linda S. Adams
Secretary for
Environmental Protection

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I. BACKGROUND

A. History

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that established storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. Regulations (Phase II Rule) that became final on December 8, 1999 lowered the permitting threshold from five acres to one acre.

While federal regulations allow two permitting options for storm water discharges (Individual Permits and General Permits), the State Water Board has elected to adopt only one statewide General Permit at this time that will apply to most storm water discharges associated with construction activity.

On August 19, 1999, the State Water Board reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ). On December 8, 1999 the State Water Board amended Order 99-08-DWQ to apply to sites as small as one acre.

The General Permit accompanying this fact sheet regulates storm water runoff from construction sites. Regulating many storm water discharges under one permit will greatly reduce the administrative burden associated with permitting individual storm water discharges. To obtain coverage under this General Permit, dischargers shall electronically file the Permit Registration Documents (PRDs), which includes a Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and other compliance related documents required by this General Permit and mail the appropriate permit fee to the State Water Board. It is expected that as the storm water program develops, the Regional Water Quality Control Boards (Regional Water Boards) may issue General Permits or Individual Permits containing more specific permit provisions. When this occurs, this General Permit will no longer regulate those dischargers.

B. Legal Challenges and Court Decisions

1. Early Court Decisions

Shortly after the passage of the CWA, the USEPA promulgated regulations exempting most storm water discharges from the NPDES permit requirements. (See 40 C.F.R. § 125.4 (1975); see also *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369, 1372 (*Costle*); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1163 (*Defenders of Wildlife*).) When environmental groups challenged this exemption in federal court, the District of Columbia Court of Appeals invalidated the regulation, holding that the USEPA "does not have authority to exempt categories of point sources from the permit requirements of [CWA] § 402." (*Costle*, 568 F.2d at 1377.) The *Costle* court rejected the USEPA's argument that effluent-based storm sewer regulation was administratively infeasible because of the variable nature of storm water pollution and the number of affected storm sewers throughout the country. (*Id.* at 1377-82.) Although the court acknowledged the practical problems relating to storm sewer regulation, the court found the USEPA had the flexibility under the CWA to design regulations that would overcome these problems. (*Id.* at 1379-83.) In particular, the court pointed to general permits and permits based on requiring best management practices (BMPs).

During the next 15 years, the USEPA made numerous attempts to reconcile the statutory requirement of point source regulation with the practical problem of regulating possibly millions of diverse point source discharges of storm water. (See *Defenders of Wildlife*, 191 F.3d at 1163; see also Gallagher, Clean Water Act in Environmental Law Handbook (Sullivan, edit., 2003) p. 300 (Environmental Law Handbook); Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Storm Water Runoff* (1995) 48 Wash. U.J. Urb. & Contemp. L.1, 40-41 [Regulation of Urban Storm Water Runoff].)

In 1987, Congress amended the CWA to require NPDES permits for storm water discharges. (See CWA § 402(p), 33 U.S.C. § 1342(p); *Defenders of Wildlife,* 191 F.3d at 1163; *Natural Resources Defense Council v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1296.) In these amendments, enacted as part of the Water Quality Act of 1987, Congress distinguished between industrial and municipal storm water discharges. With respect to industrial storm water discharges, Congress provided that NPDES permits "shall meet all applicable provisions of this section and section 1311 [requiring the USEPA to establish effluent limitations under specific timetables]." (CWA § 402(p)(3)(A), 33 U.S.C. § 1342(p)(3)(A); see also *Defenders of Wildlife,* 191 F.3d at 1163-64.)

In 1990, USEPA adopted regulations specifying what activities were considered "industrial" and thus required discharges of storm water associated with those activities to obtain coverage under NPDES permits. (55 Fed. Reg. 47,990 (1990); 40 C.F.R. § 122.26(b)(14).) Construction activities, deemed a subset of the industrial activities category, must also be regulated by an NPDES permit. (40 C.F.R. § 122.26(b)(14)(x)). In 1999, USEPA issued regulations for "Phase II" of storm water regulation, which required most small construction sites (1-5 acres) to be regulated under the NPDES program. (64 Fed. Reg. 68,722; 40 C.F.R. § 122.26(b)(15)(i).)

2. Court Decisions on Public Participation

Two recent federal court opinions have vacated USEPA rules that denied meaningful public review of NPDES permit conditions. On January 14, 2003, the Ninth Circuit Court of Appeals held that certain aspects of USEPA's Phase II regulations governing MS4s were invalid primarily because the general permit did not contain express requirements for public participation. (*Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832.) Specifically, the court determined that applications for general permit coverage (including the Notice of Intent (NOI) and Storm Water Management Program (SWMP)) must be made available to the public, the applications must be reviewed and determined to meet the applicable standard by the permitting authority before coverage commences, and there must be a process to accommodate public hearings. (*Id.* at 852-54.) Similarly, on February 28, 2005, the Second Circuit Court of Appeals held that the USEPA's confined animal feeding operation (CAFO) rule violated the CWA because it allowed dischargers to write their own nutrient management plans without public review. (*Waterkeeper Alliance v. USEPA* (2d Cir. 2005) 399 F.3d 486.) Although neither decision involved the issuance of construction storm water permits, the State Water Board's Office of Chief Counsel has recommended that the new General Permit address the courts' rulings where feasible[1].

[1] In *Texas Independent Producers and Royalty Owners Assn. v. USEPA* (7th Cir. 2005) 410 F.3d 964, the Seventh Circuit Court of Appeals held that the USEPA's construction general permit was not required to provide the public with the opportunity for a public hearing on the Notice of Intent or Storm Water Pollution Prevention Plan. The Seventh Circuit briefly discussed why it agreed with the Ninth Circuit's dissent in *Environmental Defense Center*, but generally did not discuss the substantive holdings in *Environmental Defense Center* and *Waterkeeper Alliance*, because neither court addressed the initial question of whether the plaintiffs had standing to challenge the permits at issue. However, notwithstanding the Seventh Circuit's decision, it is not binding or controlling on the State Water Board because California is located within the Ninth Circuit.

The CWA and the USEPA's regulations provide states with the discretion to formulate permit terms, including specifying best management practices (BMPs), to achieve strict compliance with federal technology-based and water quality-based standards. (*Natural Resources Defense Council v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1308.) Accordingly, this General Permit has developed specific BMPs as well as numeric action levels (NALs) and numeric effluent limitations (NELs) in order to achieve these minimum federal standards. In addition, the General Permit requires a SWPPP and REAP (another dynamic, site-specific plan) to be developed but has removed all language requiring the discharger to implement these plans – instead, the discharger is required to comply with specific requirements. By requiring the dischargers to implement these specific BMPs, NALs, and NELs, this General Permit ensures that the dischargers do not "write their own permits." As a result this General Permit does not require each discharger's SWPPP and REAP to be reviewed and approved by the Regional Water Boards.

This General Permit also requires dischargers to electronically file all permit-related compliance documents. These documents include, but are not limited to, NOIs, SWPPPs, annual reports, Notice of Terminations (NOTs), and numeric action level (NAL) exceedance reports. Electronically submitted compliance information is immediately available to the public, as well as the Regional Water Quality Control Board (Regional Water Board) offices, via the Internet. In addition, this General Permit enables public review and hearings on permit applications when appropriate. Under this General Permit, the public clearly has a meaningful opportunity to participate in the permitting process.

C. Blue Ribbon Panel of Experts and Feasibility of Numeric Effluent Limitations

In 2005 and 2006, the State Water Board convened an expert panel (panel) to address the feasibility of numeric effluent limitations (NELs) in California's storm water permits. Specifically, the panel was asked to address:

"Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits? How would such limitations or criteria be established, and what information and data would be required?"

"The answers should address industrial general permits, construction general permits, and area-wide municipal permits. The answers should also address both technology-based limitations or criteria and water quality-based limitations or criteria. In evaluating establishment of any objective criteria, the panel should address all of the following:

The ability of the State Water Board to establish appropriate objective limitations or criteria;

How compliance determinations would be made;

The ability of dischargers and inspectors to monitor for compliance; and

The technical and financial ability of dischargers to comply with the limitations or criteria."

Through a series of public participation processes (State Water Board meetings, State Water Board workshops, and the solicitation of written comments), a number of water quality, public process and overall program effectiveness problems were identified. Some of these problems are addressed through this General Permit.

D. Summary of Panel Findings on Construction Activities

The panel's final report can be downloaded and viewed through links at www.waterboards.ca.gov or by clicking here[2].

The panel made the following observations:

"Limited field studies indicate that traditional erosion and sediment controls are highly variable in performance, resulting in highly variable turbidity levels in the site discharge."

"Site-to-site variability in runoff turbidity from undeveloped sites can also be quite large in many areas of California, particularly in more arid regions with less natural vegetative cover and steep slopes."

"Active treatment technologies involving the use of polymers with relatively large storage systems now exist that can provide much more consistent and very low discharge turbidity. However, these technologies have as yet only been applied to larger construction sites, generally five acres or greater. Furthermore, toxicity has been observed at some locations, although at the vast majority of sites, toxicity has not occurred. There is also the potential for an accidental large release of such chemicals with their use."

"To date most of the construction permits have focused on TSS and turbidity, but have not addressed other, potentially significant pollutants such as phosphorus and an assortment of chemicals used at construction sites."

"Currently, there is no required training or certification program for contractors, preparers of soil erosion and sediment control Storm Water Pollution Prevention Plans, or field inspectors."

"The quality of storm water discharges from construction sites that effectively employ BMPs likely varies due to site conditions such as climate, soil, and topography."

"The States of Oregon and Washington have recently adopted similar concepts to the Action Levels described earlier."

In addition, the panel made the following conclusions:

"It is the consensus of the Panel that active treatment technologies make Numeric Limits technically feasible for pollutants commonly associated with storm water discharges from construction sites (e.g. TSS and turbidity) for larger construction sites. Technical practicalities and cost-effectiveness may make these technologies less feasible for smaller sites, including small drainages within a larger site, as these technologies have seen limited use at small construction sites. If chemical addition is not permitted, then Numeric Limits are not likely feasible."

"The Board should consider Numeric Limits or Action Levels for other pollutants of relevance to construction sites, but in particular pH. It is of particular concern where fresh concrete or wash water from cement mixers/equipment is exposed to storm water."

"The Board should consider the phased implementation of Numeric Limits and Action Levels, commensurate with the capacity of the dischargers and support industry to respond."

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[2] http://www.waterboards.ca.gov/stormwtr/docs/numeric/swpanel_final_report.pdf

E. How the Panel's Findings are Used in this General Permit

The State Water Board carefully considered the findings of the panel and related public comments. The State Water Board also reviewed and considered the comments regarding statewide storm water policy and the reissuance of the Industrial General Permit. From the input received the State Water Board identified some permit and program performance gaps that are addressed in this General Permit. The Summary of Significant Changes (below) in this General Permit are a direct result of this process.

F. Summary of Significant Changes in This General Permit

The State Water Board has significant changes to Order 99-08-DWQ. This General Permit differs from Order 99-08-DWQ in the following significant ways:

Rainfall Erosivity Waiver: this General Permit includes the option allowing a small construction site (>1 and <5 acres) to self-certify if the rainfall erosivity value (R value) for their site's given location and time frame compute to be less than or equal to 5.

Technology-Based Numeric Action Levels: this General Permit includes NALs for pH and turbidity.

Technology-Based Numeric Effluent Limitations: this General Permit contains daily average NELs for pH during any construction phase where there is a high risk of pH discharge and daily average NELs turbidity for all discharges in Risk Level 3. The daily average NEL for turbidity is set at 500 NTU to represent the minimum technology that sites need to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/ Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.

Risk-Based Permitting Approach: this General Permit establishes three levels of risk possible for a construction site. Risk is calculated in two parts: 1) Project Sediment Risk, and 2) Receiving Water Risk.

Minimum Requirements Specified: this General Permit imposes more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.

Project Site Soil Characteristics Monitoring and Reporting: this General Permit provides the option for dischargers to monitor and report the soil characteristics at their project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.

Effluent Monitoring and Reporting: this General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to determine compliance with the NELs and evaluate whether NALs included in this General Permit are exceeded.

Receiving Water Monitoring and Reporting: this General Permit requires some Risk Level 3 dischargers to monitor receiving waters and conduct bioassessments.

Post-Construction Storm Water Performance Standards: this General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize and/or mitigate post-construction storm water runoff impacts.

Rain Event Action Plan: this General Permit requires certain sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.

Annual Reporting: this General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance

with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information.

Certification/Training Requirements for Key Project Personnel: this General Permit requires that key personnel (e.g., SWPPP preparers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with General Permit requirements.

Linear Underground/Overhead Projects: this General Permit includes requirements for all Linear Underground/Overhead Projects (LUPs).

II. RATIONALE

A. General Permit Approach

A general permit for construction activities is an appropriate permitting approach for the following reasons:

1. A general permit is an efficient method to establish the essential regulatory requirements for a broad range of construction activities under differing site conditions;

2. A general permit is the most efficient method to handle the large number of construction storm water permit applications;

3. The application process for coverage under a general permit is far less onerous than that for individual permit and hence more cost effective;

4. A general permit is consistent with USEPA's four-tier permitting strategy, the purpose of which is to use the flexibility provided by the CWA in designing a workable and efficient permitting system; and

5. A general permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. It is appropriate when the discharge characteristics are sufficiently similar, and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges. In most cases, the general permit will provide sufficient and appropriate management requirements to protect the quality of receiving waters from discharges of storm water from construction sites.

There may be instances where a general permit is not appropriate for a specific construction project. A Regional Water Board may require any discharger otherwise covered under the General Permit to apply for and obtain an Individual Permit or apply for coverage under a more specific General Permit. The Regional Water Board must determine that this General Permit does not provide adequate assurance that water quality will be protected, or that there is a site-specific reason why an individual permit should be required.

B. Construction Activities Covered

1. **Construction activity subject to this General Permit:**

Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre.

Construction activity that results in land surface disturbances of less than one acre if the construction activity is part of a larger common plan of development or sale of one or more acres of disturbed land surface.

Construction activity related to residential, commercial, or industrial development on lands currently used for agriculture including, but not limited to, the construction of buildings related to agriculture that are considered industrial pursuant to USEPA regulations, such as dairy barns or food processing facilities.

Construction activity associated with LUPs including, but not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete

and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities.[3]

Storm water discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction[4] (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction projects that intend to disturb one or more acres of land within the jurisdictional boundaries of a CWA § 404 permit should contact the appropriate Regional Water Board to determine whether this permit applies to the project.

2. Linear Underground/Overhead Projects (LUPs) subject to this General Permit:

Underground/overhead facilities typically constructed as LUPs include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water, wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

Water Quality Order 2003-0007-DWQ regulated construction activities associated with small LUPs that resulted in land disturbances greater than one acre, but less than five acres. These projects were considered non-traditional construction projects. Attachment A of this Order now regulates all construction activities from LUPs resulting in land disturbances greater than one acre.

3. Common Plan of Development or Sale

USEPA regulations include the term “common plan of development or sale” to ensure that acreage within a common project does not artificially escape the permit requirements because construction activities are phased, split among smaller parcels, or completed by different owners/developers. In the absence of an exact definition of “common plan of development or sale,” the State Water Board is required to exercise its regulatory discretion in providing a common sense interpretation of the term as it applies to construction projects and permit coverage. An overbroad interpretation of the term would render meaningless the clear “one acre” federal permitting threshold and would potentially trigger permitting of

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[3] Pursuant to the Ninth Circuit Court of Appeals’ decision in *NRDC v. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the USEPA’s petition for reconsideration in November 2008, oil and gas construction activities discharging storm water contaminated only with sediment are no longer exempt from the NPDES program.

[4] A construction site that includes a dredge and/or fill discharge to any water of the United States (e.g., wetland, channel, pond, or marine water) requires a CWA Section 404 permit from the U.S. Army Corps of Engineers and a CWA Section 401 Water Quality Certification from the Regional Water Board or State Water Board.

almost any construction activity that occurs within an area that had previously received area-wide utility or road improvements.

Construction projects generally receive grading and/or building permits (Local Permits) from local authorities prior to initiating construction activity. These Local Permits spell out the scope of the project, the parcels involved, the type of construction approved, etc. Referring to the Local Permit helps define "common plan of development or sale." In cases such as tract home development, a Local Permit will include all phases of the construction project including rough grading, utility and road installation, and vertical construction. All construction activities approved in the Local Permit are part of the common plan and must remain under the General Permit until construction is completed. For custom home construction, Local Permits typically only approve vertical construction as the rough grading, utilities, and road improvements were already independently completed under the a previous Local Permit. In the case of a custom home site, the homeowner must submit plans and obtain a distinct and separate Local Permit from the local authority in order to proceed. It is not the intent of the State Water Board to require permitting for an individual homeowner building a custom home on a private lot of less than one acre if it is subject to a separate Local Permit. Similarly, the installation of a swimming pool, deck, or landscaping that disturbs less than one acre that was not part of any previous Local Permit are not required to be permitted.

The following are several examples of construction activity of less than one acre that would require permit coverage:

a. A landowner receives a building permit(s) to build tract homes on a 100-acre site split into 200 one-third acre parcels, (the remaining acreage consists of streets and parkways) which are sold to individual homeowners as they are completed. The landowner completes and sells all the parcels except for two. Although the remaining two parcels combined are less than one acre, the landowner must continue permit coverage for the two parcels.

b. One of the parcels discussed above is sold to another owner who intends to complete the construction as already approved in the Local Permit. The new landowner must file Permit Registration Documents (PRDs) to complete the construction even if the new landowner is required to obtain a separate Local Permit.

c. Landowner in (1) above purchases 50 additional one half-acre parcels adjacent to the original 200-acre project. The landowner seeks a Local Permit (or amendment to existing Local permit) to build on 20 parcels while leaving the remaining 30 parcels for future development. The landowner must amend PRDs to include the 20 parcels 14 days prior to commencement of construction activity on those parcels.

C. Construction Activities Not Covered

1. Traditional Construction Projects Not Covered

This General Permit does not apply to the following construction activity:

a. Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

b. Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation.

c. Discharges of storm water from areas on tribal lands; construction on tribal lands is regulated by a federal permit.

d. Discharges of storm water within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Board has adopted its own permit to regulate storm water discharges from construction activity in the Lake Tahoe Hydrologic Unit (Regional Water Board 6SLT). Owners of construction projects in this watershed must apply for the Lahontan Regional Water Board permit rather than the statewide Construction General Permit. Construction projects within the Lahontan region must also comply with the Lahontan Region Project Guideline for Erosion Control (R6T-2005-0007 Section), which can be found at **http://www.waterboards.ca.gov/lahontan/Adopted_Orders/2005/r6t_2005_0007.pdf**

e. Construction activity that disturbs less than one acre of land surface, unless part of a larger common plan of development or the sale of one or more acres of disturbed land surface.

f. Construction activity covered by an individual NPDES Permit for storm water discharges.

g. Landfill construction activity that is subject to the Industrial General Permit.

h. Construction activity that discharges to Combined Sewer Systems.

i. Conveyances that discharge storm water runoff combined with municipal sewage.

j. Discharges of storm water identified in CWA § 402(*l*)(2), 33 U.S.C. § 1342(*l*)(2).

2. **Linear Projects Not Covered**

a. LUP construction activity does not include linear routine maintenance projects. Routine maintenance projects are projects associated with operations and maintenance activities that are conducted on existing lines and facilities and within existing right-of-way, easements, franchise agreements, or other legally binding agreements of the discharger. Routine maintenance projects include, but are not limited to projects that are conducted to:

i. Maintain the original purpose of the facility or hydraulic capacity.

ii. Update existing lines[5] and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

iii. Repairing leaks.

Routine maintenance does not include construction of new[6] lines or facilities resulting from compliance with applicable codes, standards, and regulations.

Routine maintenance projects do not include those areas of maintenance projects that are outside of an existing right-of-way, franchise, easements, or agreements. When a project must secure new areas,

[5]Update existing lines includes replacing existing lines with new materials or pipes.
[6]New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

those areas may be subject to this General Permit based on the area of disturbed land outside the original right-of-way, easement, or agreement.

b. LUP construction activity does not include field activities associated with the planning and design of a project (e.g., activities associated with route selection).

c. Tie-ins conducted immediately adjacent to "energized" or "pressurized" facilities by the discharger are not considered construction activities where all other LUP construction activities associated with the tie-in are covered by an NOI and SWPPP of a third party or municipal agency.

3. **EPA's Small Construction Rainfall Erosivity Waiver**

EPA's Storm Water Phase II Final Rule provides the option for a Small Construction Rainfall Erosivity Waiver. This waiver applies to small construction sites between 1 and 5 acres, and allows permitting authorities to waive those sites that do not have adverse water quality impacts.

Dischargers eligible for this waiver are exempt from Construction General Permit Coverage. In order to obtain the waiver, the discharger must certify to the State Water Board that small construction activity will occur only when the rainfall erosivity factor is less than 5 ("R" in the Revised Universal Soil Loss Equation). The period of construction activity begins at initial earth disturbance and ends with final stabilization. Where vegetation will be used for final stabilization, the date of installation of a practice that provides interim non-vegetative stabilization can be used for the end of the construction period. The operator must agree (as a condition waiver eligibility) to periodically inspect and properly maintain the area until the criteria for final stabilization as defined in the General Permit have been met. If use of this interim stabilization eligibility condition was relied on to qualify for the waiver, signature on the waiver with a certification statement constitutes acceptance of and commitment to complete the final stabilization process. The discharger must submit a waiver certification to the State Board prior to commencing construction activities.

USEPA funded a cooperative agreement with Texas A&M University to develop an online rainfall erosivity calculator. Dischargers can access the calculator from EPA's website at: www.epa.gov/npdes/stormwater/cgp. Use of the calculator allows the discharger to determine potential eligibility for the rainfall erosivity waiver. It may also be useful in determining the time periods during which construction activity could be waived from permit coverage.

D. Obtaining and Terminating Permit Coverage

The Legally Responsible Person (LRP) must obtain coverage under this General Permit, except in two limited circumstances. First, where the construction of pipelines, utility lines, fiber-optic cables, or other linear underground/overhead projects will occur across several properties, the utility company, municipality, or other public or private company or agency that owns or operates the linear underground/overhead project is responsible for obtaining coverage under the General Permit. Second, where there is a lease of a mineral estate (oil, gas, geothermal, aggregate, precious metals, and/or industrial metals), the lessee is responsible for obtaining coverage under the General Permit. To obtain coverage, the LRP or other entity described above must file Permit Registration Documents (PRDs) prior to the commencement of construction activity. Failure to obtain coverage under this General Permit for storm water discharges to waters of the United States is a violation of the CWA and the California Water Code.

To obtain coverage under this General Permit, LRPs must electronically file the PRDs, which include a Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and other documents required by this General Permit, and mail the appropriate permit fee to the State Water Board. It is expected that as the storm water program develops, the Regional Water Boards may issue General Permits or

Individual Permits that contain more specific permit provisions. When this occurs, this General Permit will no longer regulate those dischargers that obtain coverage under Individual Permits.

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

The application requirements of the General Permit establish a mechanism to clearly identify the responsible parties, locations, and scope of operations of dischargers covered by the General Permit and to document the discharger's knowledge of the General Permit's requirements.

This General Permit provides a grandfathering exception to existing dischargers subject to Water Quality Order No. 99-08-DWQ. Construction projects covered under Water Quality Order No. 99-08-DWQ shall obtain permit coverage at Risk Level 1. LUP projects covered under Water Quality Order No. 2003-0007-DWQ shall obtain permit coverage at LUP Type 1. The Regional Water Boards have the authority to require Risk Determination to be performed on projects currently covered under Water Quality Order No. 99-08-DWQ and 2003-0007-DWQ where they deem necessary.

LRPs must file a Notice of Termination (NOT) with the Regional Water Board when construction is complete and final stabilization has been reached or ownership has been transferred. The discharger must certify that all State and local requirements have been met in accordance with this General Permit. In order for construction to be found complete, the discharger must install post-construction storm water management measures and establish a long-term maintenance plan. This requirement is intended to ensure that the post-construction conditions at the project site do not cause or contribute to direct or indirect water quality impacts (i.e., pollution and/or hydromodification) upstream and downstream. Specifically, the discharger must demonstrate compliance with the post-construction standards set forth in this General Permit (Section XIII). The discharger is responsible for all compliance issues including all annual fees until the NOT has been filed and approved by the local Regional Water Board.

E. Discharge Prohibitions

This General Permit authorizes the discharge of storm water to surface waters from construction activities that result in the disturbance of one or more acres of land, provided that the discharger satisfies all permit conditions set forth in the Order. This General Permit prohibits the discharge of pollutants other than storm water and non-storm water discharges authorized by this General Permit or another NPDES permit. This General Permit also prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges. In addition, this General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the nine Regional Water Boards. Discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.

Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural BMPs. The State Water Board recognizes, however, that certain non-storm water discharges may be necessary for the completion of construction projects. Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water dewatering, and other discharges not subject to a separate general NPDES permit adopted by a region. Therefore this General Permit authorizes such discharges provided they meet the following conditions.

These authorized non-storm water discharges must:

1. be infeasible to eliminate;

2. comply with BMPs as described in the SWPPP;

3. filter or treat, using appropriate technology, all dewatering discharges from sedimentation basins;

4. meet the NELs and NALs for pH and turbidity; and

5. not cause or contribute to a violation of water quality standards.

Additionally, authorized non-storm water discharges must not be used to clean up failed or inadequate construction or post-construction BMPs designed to keep materials onsite. Authorized non-storm water dewatering discharges may require a permit because some Regional Water Boards have adopted General Permits for dewatering discharges.

This General Permit prohibits the discharge of storm water that causes or threatens to cause pollution, contamination, or nuisance.

F. Effluent Standards for All Types of Discharges

1. Technology-Based Effluent Limitations

Permits for storm water discharges associated with construction activity must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize best available technology economically achievable (BAT) for toxic pollutants and non conventional pollutants and best conventional pollutant control technology (BCT) for conventional pollutants. Additionally, these provisions require controls of pollutant discharges to reduce pollutants and any more stringent controls necessary to meet water quality standards. The USEPA has already established such limitations, known as effluent limitation guidelines (ELGs), for some industrial categories. This is not the case with construction discharges. In instances where there are no ELGs the permit writer is to use best professional judgment (BPJ) to establish requirements that the discharger must meet using BAT/BCT technology. This General Permit contains both narrative effluent limitations and new numeric effluent limitations for pH and turbidity, set using the best professional judgment (BPJ) equivalent to BAT and BCT (respectively).

BAT/BCT technologies not only include passive systems such as conventional runoff and sediment control, but also treatment systems such as coagulation/flocculation using sand filtration, when appropriate. Such technologies allow for effective treatment of soil particles less 0.02 mm (medium silt) in diameter. The discharger must install structural controls, as necessary, such as erosion and sediment controls that meet BAT and BCT to achieve compliance with water quality standards. The narrative effluent limitations constitute compliance with the requirements of the CWA.

The numeric effluent limitations for pH and turbidity are based upon BPJ, which authorizes the State Water Board to issue a permit containing “such conditions as the Administrator determines are necessary to carry out the provisions of this Chapter” (CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1).) Because the USEPA has not yet issued an effluent limit guideline for storm water, the State Water Board must use BPJ to consider the appropriate technology for the category or class of point sources, based upon all available information and any unique factors relating to the sources. In addition, the permitting authority must consider a number of factors including the cost of achieving effluent reductions in relation to the effluent reduction benefits, the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and other such other factors as the State Water Board deems appropriate (CWA 304(b)(1)(B)).

Because the permit is an NPDES permit, there is no legal requirement to address the factors set forth in Water Code sections 13241 and 13263, unless the permit is more stringent than what federal law requires. (See *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 618, 627.) None of the requirements in this permit are more stringent than the minimum federal requirements, which include technology-based requirements achieving BAT/BCT and strict compliance with water quality standards. The inclusion of numeric effluent limitations (NELs) in the permit do not cause the permit to be more stringent than current federal law. NELs and best management practices are simply two different methods of achieving the same federal requirement: strict compliance with state water quality standards. Federal law authorizes both narrative and numeric effluent limitations to meet state water quality standards. The use of NELs to achieve compliance with water quality standards is not a more stringent requirement than the use of BMPs. (State Water Board Order No. WQ 2006-0012 (*Boeing*).) Accordingly, the State Water Board does not need to take into account the factors in Water Code sections 13241 and 13263.

The State Water Board has concluded that the establishment of BAT/BCT will not create or aggravate other environmental problems through increases in air pollution, solid waste generation, or energy consumption. While there may be a slight increase in non-water quality impacts due to the implementation of additional monitoring or the construction of additional BMPs, these impacts will be negligible in comparison with the construction activities taking place on site and would be justified by the water quality benefits associated with compliance.

Considerations related to the processes employed and the changes necessitated by the adoption of the BAT/BCT effluent limits have been assessed throughout the stakeholder process (e.g., the Blue Ribbon Panel and the March 2007 preliminary draft) and are discussed in detail in Section I.C of this Fact Sheet. The following sections set forth the engineering aspects of the control technologies and the rationale for the determination of the numeric effluents for pH and turbidity.

In consideration of the costs for the establishment of BAT and BCT limits for pH and turbidity, existing requirements for the control of storm water pollution from construction sites have been established by USEPA and the previous Construction General Permit (State Water Board Order No. 99-08-DWQ) issued by the State Water Board. The General Permit establishes one, consistent set of performance standards for all levels and types of discharges (i.e., risk, linear utility, and ATS).The only difference is that for each level or type of discharge there may be more or less specific effluent limitations (e.g., the addition of numeric effluent limitations for turbidity applies to level/type 3 discharges). And the numeric effluent limitations themselves represent a minimum technology standard. In other words, the additional numeric effluent limitations, compared to the existing permit's narrative effluent limitations, do not increase compliance requirements; rather, they simply represent a point where one can quantitatively measure compliance with the lower end of the range of required technologies. Therefore, the compliance costs associated with the BAT/BCT numeric effluent limitations in this permit only differ by the costs required to measure compliance with the NELs when compared to the baseline compliance costs to comply with the limitations already established through EPA regulations and the existing Construction General Permit.

The State Water Board estimates these measurement costs to be approximately $1000 per construction site for the duration of the project. This represents the estimated cost of purchasing (or renting) monitoring equipment, in this case a turbidimeter (~$600) and a pH meter (~$400). In some cases the costs may be higher or lower. Costs could be lower if the discharger chooses to design and implement the project in a manner where effluent monitoring is likely to be avoided (e.g., no exposure during wet weather seasons, no discharge due to containment, etc.). Costs could be more if the project is subject to many effluent monitoring events or if the discharger exceeds NALs and/or NELs, resulting in additional monitoring requirements.

i. ***pH NEL***

Given the potential contaminants, the minimum standard method for control of pH in runoff requires the use of preventive measures such as avoiding concrete pours during rainy weather, covering concrete and directing flow away from fresh concrete if a pour occurs during rain, covering scrap drywall and stucco

materials when stored outside and potentially exposed to rain, and other housekeeping measures. If necessary, pH-impaired storm water from construction sites can be treated in a filter or settling pond or basin, with additional natural or chemical treatment required to meet pH limits set forth in this permit. The basin or pond acts as a collection point and holds storm water for a sufficient period for the contaminants to be settled out, either naturally or artificially, and allows any additional treatment to take place. The State Water Board considers these techniques to be equivalent to BCT. In determining the pH concentration limit for discharges, the State Water Board used BPJ to set these limitations.

The chosen limits were established by calculating three standard deviations above and below the mean pH of runoff from highway construction sites[7] in California. Proper implementation of BMPs should result in discharges that are within the range of 6.0 to 9.0 pH Units.

ii. ***Turbidity NEL***

The Turbidity NEL of 500 NTU is a technology-based numeric effluent limitation and was developed using three different analyses aimed at finding the appropriate threshold to set the technology-based limit to ensure environmental protection, effluent quality and cost-effectiveness. The analyses fell into three, main types: (1) an ecoregion-specific dataset developed by Simon et. al. (2004)[8]; (2) Statewide Regional Water Quality Control Board enforcement data; and (3) published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites.

A 1:3 relationship between turbidity (expressed as NTU) and suspended sediment concentration (expressed as mg/L) is assumed based on a review of suspended sediment and turbidity data from three gages used in the USGS National Water Quality Assessment Program:

USGS 11074000 SANTA ANA R BL PRADO DAM CA
USGS 11447650 SACRAMENTO R A FREEPORT CA
USGS 11303500 SAN JOAQUIN R NR VERNALIS CA

The turbidity NEL represents a feasible and cost effective performance standard that is demonstrated to be achievable. Although data has been collected to demonstrate that lower effluent levels may be achievable at some sites, staff cannot conclude at this time that a lower NEL is achievable within all the ecoregions of the state. The NEL represents staff determination that the NEL is the most practicable based on available data. The turbidity NEL represents a bridge between the narrative effluent limitations and receiving water limitations. The NEL limit may be considered an interim performance standard as additional data becomes available for evaluation during the next permit cycle. To support this NEL, State Water Board staff analyzed construction site discharge information (monitoring data, estimates) and receiving water monitoring information.

Since the turbidity NEL represents an appropriate threshold level expected at a site, compliance with this value does not necessarily represent compliance with either the narrative effluent limitations (as enforced through the BAT/BCT standard) or the receiving water limitations. In the San Diego region, some inland surface waters have a receiving water objective for turbidity equal to 20 NTU. Obviously a discharge up to, but not exceeding, the turbidity NEL of 500 NTU may still cause or contribute to the exceedance of the 20 NTU standard. Most of the waters of the State are protected by turbidity objectives based on background conditions**.**

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[7] Caltrans Construction Sites Runoff Characterization Study, 2002. Available at: http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf.

[8] Simon, A., W.D. Dickerson, and A. Heins. 2004. Suspended-sediment transport rates at the 1.5-year recurrence interval for ecoregions of the United States: transport conditions at the bankfull and effective discharge. Geomorphology 58: pp. 243-262.

Table 1 - Regional Water Board Basin Plans, Water Quality Objectives for Turbidity

REGIONAL WATER BOARD	WQ Objective	Background/Natural Turbidity	Maximum Increase
1 Based	on background	All levels	20%
2 Based	on background	> 50 NTU	10%
3 Based	on background	0-50 JTU 50-100 JTU > 100 JTU	20% 10 NTU 10%
4 Based	on background	0-50 NTU > 50 NTU	20% 10%
5 Based	on background	0-5 NTU 5-50 NTU 50-100 NTU >100 NTU	1 NTU 20% 10 NTU 10%
6 Based	on background	All levels	10%
7 Based	on background	N/A N/A	
8 Based	on background	0-50 NTU 50-100 NTU >100 NTU	20% 10 NTU 10%
9 Inland	Surface Waters, 20 NTU All others, based on background	 0-50 NTU 50-100 NTU >100 NTU	 20% 10 NTU 10%

Table 2 shows the suspended sediment concentrations at the 1.5 year flow recurrence interval for the 12 ecoregions in California from Simon et. al (2004).

Table 2 - Results of Ecoregion Analysis

Ecoregion	Percent of California Land Area	Median Suspended Sediment Concentration (mg/L)
1 9.1		874
4 0.2		120
5 8.8		35.6
6 20.7		1530
7 7.7		122
8 3.0		47.4
9 9.4		284
13 5.2		143
14 21.7		5150
78 8.1		581
80 2.4		199
81 3.7		503
Area-weighted average		1633

If a 1:3 relationship between turbidity and suspended sediment is assumed, the median turbidity is 544 NTU.

The following table is composed of turbidity readings measured in NTUs from administrative civil liberty (ACL) actions for construction sites from 2003 - 2009. This data was derived from the complete listing of construction-related ACLs for the six year period. All ACLs were reviewed and those that included turbidimeter readings at the point of storm water discharge were selected for this dataset.

Table 3 – ACL Sampling Data taken by Regional Water Board Staff

WDID# Regi	on	Discharger	Turbidity (NTU)
5S34C331884	5S Brad	shaw Interceptor Section 6B	1800
5S05C325110	5S Bridal	wood Subdivision	1670
5S48C336297	5S Cheye	nne at Browns Valley	1629
5R32C314271	5R Gri	zzly Ranch Construction	1400
6A090406008	6T	El Dorado County Department of Transportation, Angora Creek	97.4
5S03C346861	5S	TML Development, LLC	1600
6A31C325917	6T	Northstar Village	See Subdata Set

Subdata Set - Turbidity for point of storm water runoff discharge at Northstar Village

Date Turbi	dity (NTU)	Location
10/5/2006	900	Middle Martis Creek
11/2/2006	190	Middle Martis Creek
01/04/2007	36	West Fork, West Martis Creek
02/08/2007	180	Middle Martis Creek
02/09/2007	130	Middle Martis Creek
02/09/2007	290	Middle Martis Creek
02/09/2007	100	West Fork, West Martis Creek
02/10/2007	28	Middle Martis Creek
02/10/2007	23	Middle Martis Creek
02/10/2007	32	Middle Martis Creek
02/10/2007	12	Middle Martis Creek
02/10/2007	60	West Fork, West Martis Creek
02/10/2007	34	West Fork, West Martis Creek

A 95% confidence interval for mean turbidity in an ACL order was constructed. The data set used was a small sample size, so the 500 NTU (the value derived as the NEL for this General Permit) needed to be verified as a possible population mean. In this case, the population refers to a hypothetical population of turbidity measurements of which our sample of 20 represents. A t-distribution was assumed due to the small sample size:

Mean: 512.23 NTU
Standard Deviation: 686.85
Margin of Error: 321.45
Confidence Interval: 190.78 NTU (Low)
833.68 NTU (High)

Based on a constructed 95% confidence interval, an ACL order turbidity measurement will be between 190.78 – 833.68 NTU. 500 NTU falls within this range. Using the same data set, a small-sample hypothesis test was also performed to test if the ACL turbidity data set contains enough information to cast doubt on choosing a 500 NTU as a mean. 500 NTU was again chosen due to its proposed use as an acceptable NEL value. The test was carried out using a 95% confidence interval. Results indicated that the ACL turbidity data set *does not* contain significant sample evidence to reject the claim of 500 NTU as an acceptable mean for the ACL turbidity population.

There are not many published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites. The most often cited study is a report titled, "Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control" (Horner, Guedry, and Kortenhof 1990, http://www.wsdot.wa.gov/Research/Reports/200/200.1.htm). In a comment letter summarizing this report sent to the State Water Board, the primary author, Dr. Horner, states:

"The most effective erosion control product was wood fiber mulch applied at two different rates along with a bonding agent and grass seed in sufficient time before the tests to achieve germination. Plots treated in this way reduced influent turbidity by more than 97 percent and discharged effluent exhibiting mean and maximum turbidity values of 21 and 73 NTU, respectively. Some other mulch and blanket materials performed nearly as well. These tests demonstrated the control ability of widely available BMPs over a very broad range of erosion potential."

Other technologies studied in this report produced effluent quality at or near 100 NTU. It is the BPJ of the State Water Board staff that erosion control, while preferred, is not always an option on construction sites and that technology performance in a controlled study showing effluent quality directly leaving a BMP is always easier and cheaper to control than effluent being discharged from the project (edge of property, etc.). As a result, it is the BPJ of the State Water Board staff that it is not cost effective or feasible, at this time, for all risk level and type 3 sites in California to achieve effluent discharges with turbidity values that are less than 100 NTU.

To summarize, the analysis showed that: (1) results of the Simon et. al dataset reveals turbidity values in background receiving water in California's ecoregions range from 16 NTU to 1716 NTU (with a mean of 544 NTU); (2) based on a constructed 95% confidence interval, construction sites will be subject to administrative civil liability (ACL) when their turbidity measurement falls between 190.78 – 833.68 NTU; and (3) sites with highly controlled discharges employing and maintaining good erosion control practices can discharge effluent from the BMP with turbidity values less than 100 NTU. Therefore, the appropriate threshold to set the technology-based limit to ensure environmental protection, effluent quality, and cost-effectiveness ranges from 100 NTU to over 1700 NTU. To keep this parameter and the costs of compliance as low as possible, State Water Board staff has determined, using its BPJ, that it is most cost effective to set the numeric effluent limitation for turbidity at 500 NTU.

a. Compliance Storm Event

In response to public comments on the last draft and the recommendations of the expert panel, this General Permit contains "compliance storm event" exceptions from the technology-based NELs. The rationale is that technology-based requirements are developed assuming a certain design storm (defined as the storm producing a rainfall amount for a specified BMPs capacity). Compliance thresholds are needed for storm events above and beyond the design storms assumed to determine the technology-based NELs. For Risk Level 3 project sites applicable to NELs, this General Permit establishes a compliance storm event as the equivalent rainfall in a 5-year, 24-hour storm. This compliance storm was

chosen due to its relative infrequent occurrence and the fact that the runoff volume associated with it is not as large as a 10-year, 24-hour storm event. The discharger shall determine this value using Western Regional Climate Center Precipitation Frequency Maps[9] for 5-year 24-hour storm events in Northern and Southern California (note that these are expressed in tenths of inches – divide by 10 to get inches).

b. TMDLs and Waste Load Allocations

Dischargers located within the watershed of a CWA § 303(d) impaired water body, for which a TMDL for sediment has been adopted by the Regional Water Board or USEPA, must comply with the approved TMDL if it identifies "construction activity" or land disturbance as a source of sediment. If it does, the TMDL should include a specific waste load allocation for this activity/source. The discharger, in this case, may be required by a separate Regional Water Board order to implement additional BMPs, conduct additional monitoring activities, and/or comply with an applicable waste load allocation and implementation schedule. If a specific waste load allocation has been established that would apply to a specific discharge, the Regional Water Board may adopt an order requiring specific implementation actions necessary to meet that allocation. In the instance where an approved TMDL has specified a general waste load allocation to construction storm water discharges, but no specific requirements for construction sites have been identified in the TMDL, dischargers must consult with the state TMDL authority[10] to confirm that adherence to a SWPPP that meets the requirements of the General Permit will be consistent with the approved TMDL.

2. Determining Compliance with Effluent Standards

a. Technology-Based Numeric Action Levels (NALs)

This General Permit contains technology-based NALs for pH and turbidity, and requirements for effluent monitoring at all Risk level 2 & 3, and LUP Type 2 & 3 sites. Numeric action levels are essentially numeric benchmark values for certain parameters that, if exceeded in effluent sampling, trigger the discharger to take actions. Exceedance of an NAL does not itself constitute a violation of the General Permit. If the discharger fails to take the corrective action required by the General Permit, though, that may consititute a violation.

The primary purpose of NALs is to assist dischargers in evaluating the effectiveness of their on-site measures. Construction sites need to employ many different systems that must work together to achieve compliance with the permit's requirements. The NALs chosen should indicate whether the systems are working as intended.

Another purpose of NALs is to provide information regarding construction activities and water quality impacts. This data will provide the State and Regional Water Boards and the rest of the storm water community with more information about levels and types of pollutants present in runoff and how effective the dischargers BMPs are at reducing pollutants in effluent. The State Water Board also hopes to learn more about the linkage between effluent and receiving water quality. In addition, these requirements will provide information on the mechanics needed to establish compliance monitoring programs at construction sites in future permit deliberations.

i. *pH*

[9] http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif & http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif .
[10] http://www.waterboards.ca.gov/tmdl/tmdl.html.

The chosen limits were established by calculating one standard deviation above and below the mean pH of runoff from highway construction sites[11] in California. Proper implementation of BMPs should result in discharges that are within the range of 6.5 to 8.5 pH Units.

The Caltrans study included 33 highway construction sites throughout California over a period of four years, which included 120 storm events. All of these sites had BMPs in place that would be generally implemented at all types of construction sites in California.

ii. ***Turbidity***

BPJ was used to develop an NAL that can be used as a learning tool to help dischargers improve their site controls, and to provide meaningful information on the effectiveness of storm water controls. A statewide turbidity NAL has been set at 250 NTU.

G. Receiving Water Limitations

Construction-related activities that cause or contribute to an exceedance of water quality standards must be addressed. The dynamic nature of construction activity gives the discharger the ability to quickly identify and monitor the source of the exceedances. This is because when storm water mobilizes sediment, it provides visual cues as to where corrective actions should take place and how effective they are once implemented.

This General Permit requires that storm water discharges and authorized non-storm water discharges must not contain pollutants that cause or contribute to an exceedance of any applicable water quality objective or water quality standards. The monitoring requirements in this General Permit for sampling and analysis procedures will help determine whether BMPs installed and maintained are preventing pollutants in discharges from the construction site that may cause or contribute to an exceedance of water quality standards.

Water quality standards consist of designated beneficial uses of surface waters and the adoption of ambient criteria necessary to protect those uses. When adopted by the State Water Board or a Regional Water Board, the ambient criteria are termed “water quality objectives.” If storm water runoff from construction sites contains pollutants, there is a risk that those pollutants could enter surface waters and cause or contribute to an exceedance of water quality standards. For that reason, dischargers should be aware of the applicable water quality standards in their receiving waters. (The best method to ensure compliance with receiving water limitations is to implement BMPs that prevent pollutants from contact with storm water or from leaving the construction site in runoff.)

In California, water quality standards are published in the Basin Plans adopted by each Regional Water Board, the California Toxics Rule (CTR), the National Toxics Rule (NTR), and the Ocean Plan.

Dischargers can determine the applicable water quality standards by contacting Regional Water Board staff or by consulting one of the following sources. The actual Basin Plans that contain the water quality standards can be viewed at the website of the appropriate Regional Water Board. (http://www.waterboards.ca.gov/regions.html), the State Water Board site for statewide plans (http://www.waterboards.ca.gov/plnspols/index.html), or the USEPA regulations for the NTR and CTR (40 C.F.R. §§ 131.36-38). Basin Plans and statewide plans are also available by mail from the appropriate Regional Water Board or the State Water Board. The USEPA regulations are available at http://www.epa.gov/. Additional information concerning water quality standards can be accessed through http://www.waterboards.ca.gov/stormwtr/gen_const.html.

[11] Caltrans Construction Sites Runoff Characterization Study, 2002. Available at: http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf.

H. Training Qualifications and Requirements

The Blue Ribbon Panel (BRP) made the following observation about the lack of industry-specific training requirements:

"Currently, there is no required training or certification program for contractors, preparers of soil erosion and sediment control Storm Water Pollution Prevention Plans, or field inspectors."

Order 99-08-DWQ required that all dischargers train their employees on how to comply with the permit, but it did not specificy a curriculum or certification program. This has resulted in inconsistent implementation by all affected parties - the dischargers, the local governments where the construction activity occurs, and the regulators required to enforce 99-08-DWQ. This General Permit requires Qualified SWPPP Developers and practitioners to obtain appropriate training, and makes this curriculum mandatory two years after adoption, to allow time for course completion. The State and Regional Water Board are working with many stakeholders to develop the curriculum and mechanisms needed to develop and deliver the courses.

To ensure that the preparation, implementation, and oversight of the SWPPP is sufficient for effective pollution prevention, the Qualified SWPPP Developer and Qualified SWPPP Practitioners responsible for creating, revising, overseeing, and implementing the SWPPP must attend a State Water Board-sponsored or approved Qualified SWPPP Developer and Qualified SWPPP Practitioner training course.

I. Sampling, Monitoring, Reporting and Record Keeping

1. Traditional Construction Monitoring Requirements

This General Permit requires visual monitoring at all sites, and effluent water quality at all Risk Level 2 & 3 sites. It requires receiving water monitoring at some Risk Level 3 sites. All sites are required to submit annual reports, which contain various types of information, depending on the site characteristics and events. A summary of the monitoring and reporting requirements is found in Table 4.

Table 4 - Required Monitoring Elements for Risk Levels

	Visual	Non-visible Pollutant	Effluent	Receiving Water
Risk Level 1	three types required for all Risk Levels: non-storm water, pre-rain and post-rain	As needed for all Risk Levels (see below)	where applicable	not required
Risk Level 2			pH, turbidity	not required
Risk Level 3			(if NEL exceeded) pH, turbidity and SSC	(if NEL exceeded) pH, turbidity and SSC. Bioassessment for sites 30 acres or larger.

a. Visual

All dischargers are required to conduct quarterly, non-storm water visual inspections. For these inspections, the discharger must visually observe each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources. For storm-related inspections, dischargers must visually observe storm water discharges at all discharge locations within two business days after a qualifying event. For this requirement, a qualifying rain event is one producing precipitation of ½ inch or more of discharge. Dischargers must conduct a post-storm event inspection to

(1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify any additional BMPs necessary and revise the SWPPP accordingly. Dischargers must maintain on-site records of all visual observations, personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

b. Non-Visible Pollutant Monitoring

This General Permit requires that all dischargers develop a sampling and analysis strategy for monitoring pollutants that are not visually detectable in storm water. Monitoring for non-visible pollutants must be required at any construction site when the exposure of construction materials occurs and where a discharge can cause or contribute to an exceedance of a water quality objective.

Of significant concern for construction discharges are the pollutants found in materials used in large quantities at construction sites throughout California and exposed throughout the rainy season, such as cement, flyash, and other recycled materials or by-products of combustion. The water quality standards that apply to these materials will depend on their composition. Some of the more common storm water pollutants from construction activity are not CTR pollutants. Examples of non-visible pollutants include glyphosate (herbicides), diazinon and chlorpyrifos (pesticides), nutrients (fertilizers), and molybdenum (lubricants). The use of diazinon and chlorpyrifos is a common practice among landscaping professionals and may trigger sampling and analysis requirements if these materials come into contact with storm water. High pH values from cement and gypsum, high pH and SSC from wash waters, and chemical/fecal contamination from portable toilets, also are not CTR pollutants. Although some of these constituents do have numeric water quality objectives in individual Basin Plans, many do not and are subject only to narrative water quality standards (i.e. not causing toxicity). Dischargers are encouraged to discuss these issues with Regional Water Board staff and other storm water quality professionals.

The most effective way to avoid the sampling and analysis requirements, and to ensure permit compliance, is to avoid the exposure of construction materials to precipitation and storm water runoff. Materials that are not exposed do not have the potential to enter storm water runoff, and therefore receiving waters sampling is not required. Preventing contact between storm water and construction materials is one of the most important BMPs at any construction site.

Preventing or eliminating the exposure of pollutants at construction sites is not always possible. Some materials, such as soil amendments, are designed to be used in a manner that will result in exposure to storm water. In these cases, it is important to make sure that these materials are applied according to the manufacturer's instructions and at a time when they are unlikely to be washed away. Other construction materials can be exposed when storage, waste disposal or the application of the material is done in a manner not protective of water quality. For these situations, sampling is required unless there is capture and containment of all storm water that has been exposed. In cases where construction materials may be exposed to storm water, but the storm water is contained and is not allowed to run off the site, sampling will only be required when inspections show that the containment failed or is breached, resulting in potential exposure or discharge to receiving waters.

The discharger must develop a list of potential pollutants based on a review of potential sources, which will include construction materials soil amendments, soil treatments, and historic contamination at the site. The discharger must review existing environmental and real estate documentation to determine the potential for pollutants that could be present on the construction site as a result of past land use activities.

Good sources of information on previously existing pollution and past land uses include:

i. Environmental Assessments;

ii. Initial Studies;

iii. Phase 1 Assessments prepared for property transfers; and

iv. Environmental Impact Reports or Environmental Impact Statements prepared under the requirements of the National Environmental Policy Act or the California Environmental Quality Act.

In some instances, the results of soil chemical analyses may be available and can provide additional information on potential contamination.

The potential pollutant list must include all non-visible pollutants that are known or should be known to occur on the construction site including, but not limited to, materials that:

i. are being used in construction activities;

ii. are stored on the construction site;

iii. were spilled during construction operations and not cleaned up;

iv. were stored (or used) in a manner that created the potential for a release of the materials during past land use activities;

v. were spilled during previous land use activities and not cleaned up; or

vi. were applied to the soil as part of past land use activities.

C. Effluent Monitoring

Federal regulations[12] require effluent monitoring for discharges subject to NALs and NELs. Subsequently, all Risk Level 2 and 3 dischargers must perform sampling and analysis of effluent discharges to characterize discharges associated with construction activity from the entire area disturbed by the project. Dischargers must collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.

Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level

	Frequency	Effluent Monitoring (Section E, below)
Risk Level 1	when applicable	non-visible pollutant parameters (if applicable)
Risk Level 2	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters (if applicable)
Risk Level 3	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	If NEL exceeded: pH, turbidity and suspended sediment concentration (SSC)., Plus non-visible pollutant parameters if applicable

Risk Level 1 dischargers must analyze samples for:

[12] 40 C.F.R. § 122.44.

i. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment C contained in the General Permit.

Risk Level 2 dischargers must analyze samples for:

i. pH and turbidity;

ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment D contained in the General Permit, and

iii. any additional parameters for which monitoring is required by the Regional Water Board.

Risk Level 3 dischargers must analyze samples for:

i. pH, turbidity and SSC;

ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment E contained in the General Permit, and

iii. any additional parameters for which monitoring is required by the Regional Water Board.

2. **Linear Monitoring and Sampling Requirements**

Attachment A, establishes minimum monitoring and reporting requirements for all LUPs. It establishes different monitoring requirements depending on project complexity and risk to water quality. The monitoring requirements for Type 1 LUPs are less than Type 2 & 3 projects because Type 1 projects have a lower potential to impact water quality.

A discharger shall prepare a monitoring program prior to the start of construction and immediately implement the program at the start of construction for LUPs. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the project.

a. **Type 1 LUP Monitoring Requirements**

A discharger must conduct daily visual inspections of Type 1 LUPs during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be conducted in conjunction with other daily activities. Inspections will be conducted to ensure the BMPs are adequate, maintained, and in place at the end of the construction day. The discharger will revise the SWPPP, as appropriate, based on the results of the daily inspections. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures have been installed, and successful final vegetative cover or other stabilization criteria have been met).

A discharger shall implement the monitoring program for inspecting Type 1 LUPs. This program requires temporary and permanent stabilization BMPs after active construction is completed. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where re-vegetation is chosen until minimum vegetative coverage has been established. Photographs shall be taken during site inspections and submitted to the State Water Board.

b. Type 2 & 3 LUP Monitoring Requirements

A discharger must conduct daily visual inspections of Type 2 & 3 LUPs during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be in conjunction with other daily activities.

All dischargers of Type 2 & 3 LUPs are required to conduct inspections by qualified personnel of the construction site during normal working hours prior to all anticipated storm events and after actual storm events. During extended storm events, the discharger shall conduct inspections during normal working hours for each 24-hour period. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures installed, and successful vegetative cover or other stabilization criteria have been met).

The goals of these inspections are (1) to identify areas contributing to a storm water discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the General Permit; and (3) to determine whether additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible, depending upon worker safety.

All dischargers shall develop and implement a monitoring program for inspecting Type 2 & 3 LUPs that require temporary and permanent stabilization BMPs after active construction is completed. Inspections will be conducted to ensure the BMPs are adequate and maintained. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where revegetation is chosen until minimum vegetative coverage has been established.

A log of inspections conducted before, during, and after the storm events must be maintained in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection. Photographs must be taken during site inspections and submitted to the State Water Board.

c. Sampling Requirements for all LUP Project Types

LUPs are also subject to sampling and analysis requirements for visible pollutants (i.e., sedimentation/siltation, turbidity) and for non-visible pollutants.

Sampling for visible pollutants is required for Type 2 & 3 LUPs.

Non-visible pollutant monitoring is required for pollutants associated with construction sites and activities that (1) are not visually detectable in storm water discharges, and (2) are known or should be known to occur on the construction site, and (3) could cause or contribute to an exceedance of water quality objectives in the receiving waters. Sample collection for non-visible pollutants must only be required (1) during a storm event when pollutants associated with construction activities may be discharged with storm water runoff due to a spill, or in the event there was a breach, malfunction, failure, and/or leak of any BMP, and (2) when the discharger has failed to adequately clean the area of material and pollutants. Failure to implement appropriate BMPs will trigger the same sampling requirements as those required for a breach, malfunction and/or leak, or when the discharger has failed to implement appropriate BMPs prior to the next storm event.

Additional monitoring parameters may be required by the Regional Water Boards.

It is not anticipated that many LUPs will be required to collect samples for pollutants not visually detected in runoff due to the nature and character of the construction site and activities as previously described in this fact sheet. Most LUPs are constructed in urban areas with public access (e.g., existing roadways, road shoulders, parking areas, etc.). This raises a concern regarding the potential contribution of pollutants from vehicle use and/or from normal activities of the public (e.g., vehicle washing, landscape fertilization, pest spraying, etc.) in runoff from the project site. Since the dischargers are not the land

owners of the project area and are not able to control the presence of these pollutants in the storm water that runs through their projects, it is not the intent of this General Permit to require dischargers to sample for these pollutants. This General Permit does not require the discharger to sample for these types of pollutants except where the discharger has brought materials onsite that contain these pollutants and when a condition (e.g., breach, failure, etc.) described above occurs.

3. Receiving Water Monitoring

In order to ensure that receiving water limitations are met, discharges subject to numeric effluent limitations (i.e., Risk Level 3, LUP Type 3, and ATS with direct discharges into receiving waters) must also monitor the downstream receiving water(s) for turbidity, SSC, and pH (if applicable) when an NEL is exceeded.

a. Bioassessment Monitoring

This General Permit requires a bioassessment of receiving waters for dischargers of Risk Level 3 or LUP Type 3 construction projects equal to or larger than 30 acres with direct discharges into receiving waters. Benthic macroinvertebrate samples will be taken upstream and downstream of the site's discharge point in the receiving water. Bioassessments measure the quality of the stream by analyzing the aquatic life present. Higher levels of appropriate aquatic species tend to indicate a healthy stream; whereas low levels of organisms can indicate stream degradation. Active construction sites have the potential to discharge large amounts of sediment and pollutants into receiving waters. Requiring a bioassessment for large project sites, with the most potential to impact water quality, provides a snapshot of the health of the receiving water prior to initiation of construction activities. This snapshot can be used in comparison to the health of the receiving water after construction has commenced.

Each ecoregion (biologically and geographically related area) in the State has a specific yearly peak time where stream biota is in a stable and abundant state. This time of year is called an Index Period. The bioassessment requirements in this General Permit, requires benthic macroinvertebrate sampling within a sites index period. The State Water Board has developed a map designating index periods for the ecoregions in the State (see State Water Board Website).

This General Permit requires the bioassessment methods to be in accordance with the Surface Water Ambient Monitoring Program (SWAMP) in order to provide data consistency within the state as well as generate useable biological stream data.

Table 6 - Receiving Water Monitoring Requirements

	Receiving Water Monitoring Parameters
Risk Level 1 /LUP Type 1	not required
Risk Level 2 / LUP Type 2	not required
Risk Level 3 / LUP Type 3	If NEL exceeded: pH (if applicable), turbidity, and SSC. Bioassessment for sites 30 acres or larger.

4. Reporting Requirements

a. NEL Violation Report

All Risk Level 3 and LUP Type 3 dischargers must electronically submit all storm event sampling results to the State and Regional Water Boards, via SMARTS, no later than 5 days after the conclusion of the storm event. The purpose of the electronic filing of the NEL Violation Report is to 1) inform stakeholder agencies and organizations and the general public, and 2) notify the State and Regional Water Boards of

the exceedance so that they can determine whether any follow-up (e.g., inspection, enforcement, etc.) is necessary to bring the site into compliance.

In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, Risk level 3/LUP Type 3 dischargers shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification. Specifically, the NEL Exceedance Report is required to contain:

- the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit are to be reported as "less than the method detection limit or <MDL");
- the date, place, and time of sampling;
- any visual observation (inspections);
- any measurements, including precipitation; and
- a description of the current BMPs associated with the effluent sample that exceeded the NEL and any proposed corrective actions taken.

b. **NAL Exceedance Report**

All Risk Level 3 and LUP Type 3 dischargers must electronically submit all storm event sampling results to the State and Regional Water Boards, via the electronic data system, no later than 5 days after the conclusion of the storm event. In the event that any effluent sample exceeds an applicable NAL, all Risk Level 2 and LUP Type 2 dischargers must electronically submit all storm event sampling results to the State and Regional Water Boards no later than 10 days after the conclusion of the storm event. The Regional Water Boards have the authority to require the submittal of an NAL Exceedance Report.

Specifically, the NAL Exceedance Report is required to contain:

- the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit are to be reported as "less than the method detection limit or <MDL");
- the date, place, and time of sampling;
- any visual observation (inspections);
- any measurements, including precipitation; and
- a description of the current BMPs associated with the effluent sample that exceeded the NAL and any proposed corrective actions taken.

c. **Annual Report**

All dischargers must prepare and electronically submit an annual report no later than September 1 of each year using the Storm water Multi-Application Reporting and Tracking System (SMARTS). The Annual Report must include a summary and evaluation of all sampling and analysis results, original laboratory reports, chain of custody forms, a summary of all corrective actions taken during the compliance year, and identification of any compliance activities or corrective actions that were not implemented.

5. Record Keeping

According to 40 C.F.R. Parts 122.21(p) and 122.41(j), the discharger is required to retain paper or electronic copies of all records required by this General Permit for a period of at least three years from the date generated or the date submitted to the State Water Board or Regional Water Boards. A discharger must retain records for a period beyond three years as directed by Regional Water Board.

J. Risk Determination

1. Traditional Projects

a. Overall Risk Determination

There are two major requirements related to site planning and risk determination in this General Permit. The project's overall risk is broken up into two elements – (1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details) and (2) receiving water risk (the risk sediment discharges pose to the receiving waters).

Project Sediment Risk:
Project Sediment Risk is determined by multiplying the R, K, and LS factors from the Revised Universal Soil Loss Equation (RUSLE) to obtain an estimate of project-related bare ground soil loss expressed in tons/acre. The RUSLE equation is as follows:

A = (R)(K)(LS)(C)(P)

Where: A = the rate of sheet and rill erosion
R = rainfall-runoff erosivity factor
K = soil erodibility factor
LS = length-slope factor
C = cover factor (erosion controls)
P = management operations and support practices (sediment controls)

The C and P factors are given values of 1.0 to simulate bare ground conditions.

There is a map option and a manual calculation option for determining soil loss. For the map option, the R factor for the project is calculated using the online calculator at http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm. The product of K and LS are shown on Figure 1. To determine soil loss in tons per acre, the discharger multiplies the R factor times the value for K times LS from the map.

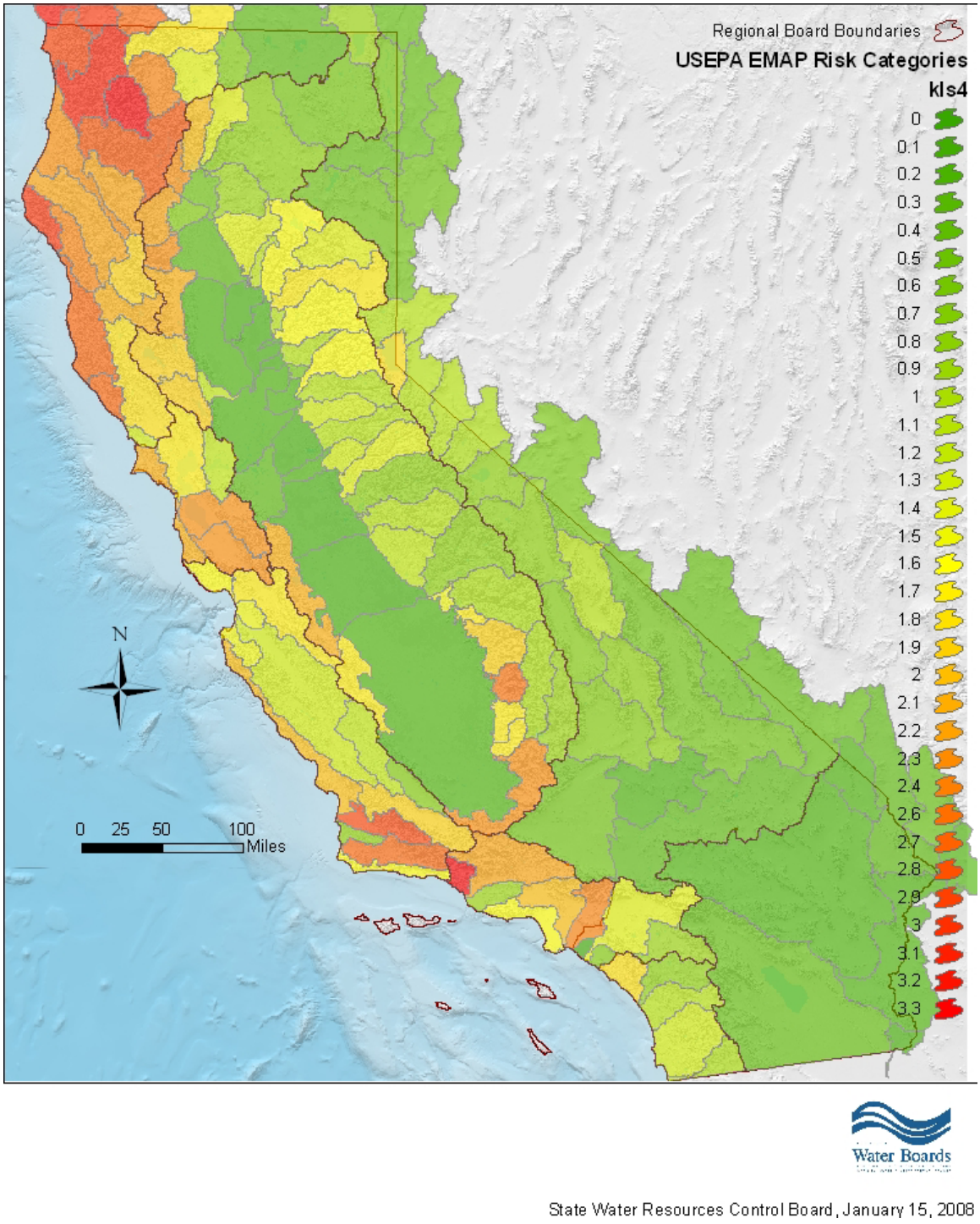

Figure 1 -Statewide Map of K * LS

For the manual calculation option, the R factor for the project is calculated using the online calculator at http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm. The K and LS factors are determined using Appendix 1.

Soil loss of less than 15 tons/acre is considered **low** sediment risk.
Soil loss between 15 and 75 tons/acre is **medium** sediment risk.
Soil loss over 75 tons/acre is considered **high** sediment risk.

The soil loss values and risk categories were obtained from mean and standard deviation RKLS values from the USEPA EMAP program. High risk is the mean RKLS value plus two standard deviations. Low risk is the mean RKLS value minus two standard deviations.

Receiving Water Risk:
Receiving water risk is based on whether a project drains to a sediment-sensitive waterbody. A sediment-sensitive waterbody is either

on the most recent 303d list for waterbodies impaired for sediment;
has a USEPA-approved Total Maximum Daily Load implementation plan for sediment; **or**
has the beneficial uses of COLD, SPAWN, and MIGRATORY.

A project that meets at least one of the three criteria has a high receiving water risk. A list of sediment-sensitive waterbodies will be posted on the State Water Board's website. It is anticipated that an interactive map of sediment sensitive water bodies in California will be available in the future.

The Risk Levels have been altered by eliminating the possibility of a Risk Level 4, and expanding the constraints for Risk Levels 1, 2, and 3. Therefore, projects with high receiving water risk and high sediment risk will be considered a Risk Level 3 risk to water quality.

In response to public comments, the Risk Level requirements have also been changed such that Risk Level 1 projects will be subject to minimum BMP and visual monitoring requirements, Risk Level 2 projects will be subject to NALs and some additional monitoring requirements, and Risk Level 3 projects will be subject to NELs, and more rigorous monitoring requirements such as receiving water monitoring and in some cases bioassessment.

Table 7 - Combined Risk Level Matrix

Combined Risk Level Matrix				
Receiving Water Risk		Sediment Risk		
		Low Medium		High
	Low	Level 1	Level 2	
	High	Level 2		Level 3

b. **Effluent Standards**

All dischargers are subject to the narrative effluent limitations specified in the General Permit. The narrative effluent limitations require storm water discharges associated with construction activity to meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize BAT and BCT to reduce pollutants and any more stringent controls necessary to meet water quality standards.

Risk Level 2, and 3 dischargers are subject to numeric effluent standards comparable to the project's risk to water quality. Risk Level 2 dischargers that pose a medium risk to water quality are subject to technology-based NALs for pH and turbidity. Risk Level 3 dischargers that pose a high risk to water quality are subject to technology-based NALs and technology-based NELs for pH and turbidity.

c. Good Housekeeping

Proper handling and managing of construction materials can help minimize threats to water quality. The discharger must consider good housekeeping measures for: construction materials, waste management, vehicle storage & maintenance, landscape materials, and potential pollutant sources. Examples include; conducting an inventory of products used, implementing proper storage & containment, and properly cleaning all leaks from equipment and vehicles.

d. Non-Storm Water Management

Non-storm water discharges directly connected to receiving waters or the storm drain system have the potential to negatively impact water quality. The discharger must implement measures to control all non-storm water discharges during construction, and from dewatering activities associated with construction. Examples include; properly washing vehicles in contained areas, cleaning streets, and minimizing irrigation runoff.

e. Erosion Control

The best way to minimize the risk of creating erosion and sedimentation problems during construction is to disturb as little of the land surface as possible by fitting the development to the terrain. When development is tailored to the natural contours of the land, little grading is necessary and, consequently, erosion potential is lower.[14] Other effective erosion control measures include: preserving existing vegetation where feasible, limiting disturbance, and stabilizing and re-vegetating disturbed areas as soon as possible after grading or construction activities. Particular attention must be paid to large, mass-graded sites where the potential for soil exposure to the erosive effects of rainfall and wind is great and where there is potential for significant sediment discharge from the site to surface waters. Until permanent vegetation is established, soil cover is the most cost-effective and expeditious method to protect soil particles from detachment and transport by rainfall. Temporary soil stabilization can be the single most important factor in reducing erosion at construction sites. The discharger is required to consider measures such as: covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. These erosion control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed. Erosion control BMPs should be the primary means of preventing storm water contamination, and sediment control techniques should be used to capture any soil that becomes eroded.[13]

Risk Level 3 dischargers pose a higher risk to water quality and are therefore additionally required to ensure that post-construction soil loss is equivalent to or less than the pre-construction levels.

f. Sediment Control

Sediment control BMPs should be the secondary means of preventing storm water contamination. When erosion control techniques are ineffective, sediment control techniques should be used to capture any soil that becomes eroded. The discharger is required to consider perimeter control measures such as: installing silt fences or placing straw wattles below slopes. These sediment control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed.

Because Risk Level 2 and 3 dischargers pose a higher risk to water quality, additional requirements for the application of sediment controls are imposed on these projects. This General Permit also authorizes the Regional Water Boards to require Risk Level 3 dischargers to implement additional site-specific

[13] U.S. Environmental Protection Agency. 2007. Developing Your Storm Water Pollution Prevention Plan: A Guide for Construction Sites.

sediment control requirements if the implementation of other erosion or sediment controls are not adequately protecting the receiving waters.

g. Run-on and Runoff Control

Inappropriate management of run-on and runoff can result in excessive physical impacts to receiving waters from sediment and increased flows. The discharger is required to manage all run-on and runoff from a project site. Examples include: installing berms and other temporary run-on and runoff diversions.

Risk Level 1 dischargers with lower risks to impact water quality are not subject to the run-on and runoff control requirements unless an evaluation deems them necessary or visual inspections show that such controls are required.

h. Inspection, Maintenance and Repair

All measures must be periodically inspected, maintained and repaired to ensure that receiving water quality is protected. Frequent inspections coupled with thorough documentation and timely repair is necessary to ensure that all measures are functioning as intended.

i. Rain Event Action Plan (REAP)

A Rain Event Action Plan (REAP) is a written document, specific for each rain event. A REAP should be designed that when implemented it protects all exposed portions of the site within 48 hours of any likely precipitation event forecast of 50% or greater probability.

This General Permit requires Risk Level 2 and 3 dischargers to develop and implement a REAP designed to protect all exposed portions of their sites within 48 hours prior to any likely precipitation event. The REAP requirement is designed to ensure that the discharger has adequate materials, staff, and time to implement erosion and sediment control measures that are intended to reduce the amount of sediment and other pollutants generated from the active site. A REAP must be developed when there is likely a forecast of 50% or greater probability of precipitation in the project area. (The National Oceanic and Atmospheric Administration (NOAA) defines a chance of precipitation as a probability of precipitation of 30% to 50% chance of producing precipitation in the project area.[14] NOAA defines the probability of precipitation (PoP) as the likelihood of occurrence (expressed as a percent) of a measurable amount (0.01 inch or more) of liquid precipitation (or the water equivalent of frozen precipitation) during a specified period of time at any given point in the forecast area.) Forecasts are normally issued for 12-hour time periods. Descriptive terms for uncertainty and aerial coverage are used as follows:

Table 8 -National Oceanic and Atmospheric Administration (NOAA) Definition of Probability of Precipitation (PoP)

PoP	Expressions of Uncertainty	Aerial Coverage
0%	none used	none used
10%	none used	isolated
20%	slight chance	isolated
30-50%	chance	scattered

[14] http://www.crh.noaa.gov/lot/severe/wxterms.php.

60-70%	likely	numerous
80-100%	none used	none used

The discharger must obtain the precipitation forecast information from the National Weather Service Forecast Office (http://www.srh.noaa.gov/).

2. Linear Projects

a. Linear Risk Determination

LUPs vary in complexity and water quality concerns based on the type of project. This General Permit has varying application requirements based on the project's risk to water quality. Factors that lead to the characterization of the project include location, sediment risk, and receiving water risk.

Based on the location and complexity of a project area or project section area, LUPs are separated into project types. As described below, LUPs have been categorized into three project types.

i. *Type 1 LUPs*

Type 1 LUPs are those construction projects where:

(1) 70 percent or more of the construction activity occurs on a paved surface and where areas disturbed during construction will be returned to preconstruction conditions or equivalent protection established at the end of the construction activities for the day, or

(2) greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them where:

Areas disturbed during construction will be returned to pre-construction conditions or equivalent protection established at the end of the construction activities for the day to minimize the potential for erosion and sediment deposition, and

Areas where established vegetation was disturbed during construction will be stabilized and re-vegetated by the end of project. When required, adequate temporary stabilization Best Management Practices (BMPs) will be installed and maintained until vegetation is established to meet minimum cover requirements established in this General Permit for final stabilization.

Type 1 LUPs typically do not have a high potential to impact storm water quality because (1) these construction activities are not typically conducted during a rain event, (2) these projects are normally constructed over a short period of time[15], minimizing the duration that pollutants could potentially be exposed to rainfall; and (3) disturbed soils such as those from trench excavation are required to be hauled away, backfilled into the trench, and/or covered (e.g., metal plates, pavement, plastic covers over spoil piles) at the end of the construction day.

[15] Short period of time refers to a project duration of weeks to months, but typically less than one year in duration.

Type 1 LUPs are determined during the risk assessment found in Attachment A.1 to be 1) low sediment risk and low receiving water risk; 2) low sediment risk and medium receiving water risk; and 3) medium sediment risk and low receiving water risk.

This General Permit requires the discharger to ensure a SWPPP is developed for these construction activities that is specific to project type, location and characteristics.

ii. ***Type 2 LUPs:***

Type 2 projects are determined to have a combination of High, Medium, and Low project sediment risk along with High, Medium, and Low receiving water risk. Like Type 1 projects, Type 2 projects are typically constructed over a short period of time. However, these projects have a higher potential to impact water quality because they:

(1) typically occur outside the more urban/developed areas;

(2) have larger areas of soil disturbance that are not closed or restored at the end of the day;

(3) may have onsite stockpiles of soil, spoil and other materials;

(4) cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and

(5) have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup and/or reclamation occurs.

This General Permit requires the discharger to develop and implement a SWPPP for these construction activities that are specific for project type, location and characteristics.

iii. ***Type 3 LUPs:***

Type 3 projects are determined to have a combination of High and Medium project sediment risk along with High and Medium receiving water risk. Similar to Type 2 projects, Type 3 projects have a higher potential to impact water quality because they:

(1) typically occur outside of the more urban/developed areas;

(2) have larger areas of soil disturbance that are not closed or restored at the end of the day;

(3) may have onsite stockpiles of soil, spoil and other materials;

(4) cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and

(5) have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup and/or reclamation occurs.

This General Permit requires the discharger to develop and implement a SWPPP for these construction activities that are specific for project type, location, and characteristics.

b. **Linear Effluent Standards**

All LUPs are subject to the narrative effluent limitations specified in the General Permit.

Type 2 and 3 LUPs are subject to NELs comparable to the project type's risk to water quality. Type 2 projects that pose an intermediate risk to water quality are subject to technology-based NALs for pH and turbidity. Type 3 projects posing a high risk to water quality are subject to technology-based NALs and NELs for pH and turbidity.

c. Linear Good Housekeeping

Improper use and handling of construction materials could potentially cause a threat to water quality. In order to ensure proper site management of these construction materials, all LUP dischargers must comply with a minimum set of Good Housekeeping measures specified in Attachment A of this General Permit.

d. Linear Non-Storm Water Management

In order to ensure control of all non-storm water discharges during construction, all LUP dischargers must comply with the Non-Storm Water Management measures specified in Attachment A of this General Permit.

e. Linear Erosion Control

This General Permit requires all LUP dischargers to implement effective wind erosion control measures, and soil cover for inactive areas. Type 3 LUPs posing a higher risk to water quality are additionally required to ensure the post-construction soil loss is equivalent to or less than the pre-construction levels.

f. Linear Sediment Control

In order to ensure control and containment of all sediment discharges, all LUP dischargers must comply with the general Sediment Control measures specified in Attachment A or this General Permit. Additional requirements for sediment controls are imposed on Type 2 & 3 LUPs due to their higher risk to water quality.

g. Linear Run-on and Runoff Control

Discharges originating outside of a project's perimeter and flowing onto the property can adversely affect the quantity and quality of discharges originating from a project site. In order to ensure proper management of run-on and runoff, all LUPs must comply with the run-on and runoff control measures specified in Attachment A of this General Permit. Due to the lower risk of impacting water quality, Type 1 LUPs are not required to implement run-on and runoff controls unless deemed necessary by the discharger.

h. Linear Inspection, Maintenance and Repair

Proper inspection, maintenance, and repair activities are important to ensure the effectiveness of on-site measures to control water quality. In order to ensure that inspection, maintenance, and repair activities are adequately performed, the all LUP dischargers a re required to comply with the Inspection, Maintenance, and Repair requirements specified in Attachment A of this General Permit.

K. ATS[16] Requirements

There are instances on construction sites where traditional erosion and sediment controls do not effectively control accelerated erosion. Under such circumstances, or under circumstances where storm water discharges leaving the site may cause or contribute to an exceedance of a water quality standard, the use of an Active Treatment System (ATS) may be necessary. Additionally, it may be appropriate to use an ATS when site constraints inhibit the ability to construct a correctly sized sediment basin, when clay and/or highly erosive soils are present, or when the site has very steep or long slope lengths.[17]

Although treatment systems have been in use in some form since the mid-1990s, the ATS industry in California is relatively young, and detailed regulatory standards have not yet been developed. Many developers are using these systems to treat storm water discharges from their construction sites. The new ATS requirements set forth in this General Permit are based on those in place for small wastewater treatment systems, ATS regulations from the Central Valley Regional Water Quality Control Board (September 2005 memorandum "2005/2006 Rainy Season – Monitoring Requirements for Storm Water Treatment Systems that Utilize Chemical Additives to Enhance Sedimentation"), the Construction Storm Water Program at the State of Washington's Department of Ecology, as well as recent advances in technology and knowledge of coagulant performance and aquatic safety.

The effective design of an ATS requires a detailed survey and analysis of site conditions. With proper planning, ATS performance can provide exceptional water quality discharge and prevent significant impacts to surface water quality, even under extreme environmental conditions.

These systems can be very effective in reducing the sediment in storm water runoff, but the systems that use additives/polymers to enhance sedimentation also pose a potential risk to water quality (e.g., operational failure, equipment failure, additive/polymer release, etc.). The State Water Board is concerned about the potential acute and chronic impacts that the polymers and other chemical additives may have on fish and aquatic organisms if released in sufficient quantities or concentrations. In addition to anecdotal evidence of polymer releases causing aquatic toxicity in California, the literature supports this concern.[18] For example, cationic polymers have been shown to bind with the negatively charged gills of fish, resulting in mechanical suffocation.[19] Due to the potential toxicity impacts, which may be caused by the release of additives/polymers into receiving waters, this General Permit establishes residual polymer monitoring and toxicity testing requirements have been established in this General Permit for discharges from construction sites that utilize an ATS in order to protect receiving water quality and beneficial uses.

The primary treatment process in an ATS is coagulation/flocculation. ATS's operate on the principle that the added coagulant is bound to suspended sediment, forming floc, which is gravitationally settled in tanks or a basin, or removed by sand filters. A typical installation utilizes an injection pump upstream from the clarifier tank, basin, or sand filters, which is electronically metered to both flow rate and suspended solids level of the influent, assuring a constant dose. The coagulant mixes and reacts with the influent, forming a dense floc. The floc may be removed by gravitational setting in a clarifier tank or basin, or by filtration. Water from the clarifier tank, basin, or sand filters may be routed through cartridge(s) and/or bag filters for final polishing. Vendor-specific systems use various methods of dose control, sediment/floc removal, filtration, etc., that are detailed in project-specific documentation. The

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[16] An ATS is a treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation in order to reduce turbidity caused by fine suspended sediment.
[17] Pitt, R., S. Clark, and D. Lake. 2006. Construction Site Erosion and Sediment Controls: Planning, Design, and Performance. DEStech Publications. Lancaster, PA. 370pp.
[18] RomØen, K., B. Thu, and Ø. Evensen. 2002. Immersion delivery of plasmid DNA II. A study of the potentials of a chitosan based delivery system in rainbow trout (*Oncorhynchus mykiss*) fry. *Journal of Controlled Release* **85**: 215-225.
[19] Bullock, G., V. Blazer, S. Tsukuda, and S. Summerfelt. 2000. Toxicity of acidified chitosan for cultured rainbow trout (*Oncorhynchus mykiss*). *Aquaculture* **185**:273-280.

particular coagulant/flocculant to be used for a given project is determined based on the water chemistry of the site because the coagulants are specific in their reactions with various types of sediments. Appropriate selection of dosage must be carefully matched to the characteristics of each site.

ATS's are operated in two differing modes, either Batch or Flow-Through. Batch treatment can be defined as Pump-Treat-Hold-Test-Release. In Batch treatment, water is held in a basin or tank, and is not discharged until treatment is complete. Batch treatment involves holding or recirculating the treated water in a holding basin or tank(s) until treatment is complete or the basin or storage tank(s) is full. In Flow-Through treatment, water is pumped into the ATS directly from the runoff collection system or storm water holding pond, where it is treated and filtered as it flows through the system, and is then directly discharged. "Flow-Through Treatment" is also referred to as "Continuous Treatment."

1. **Effluent Standards**

This General Permit establishes NELs for discharges from construction sites that utilize an ATS. These systems lend themselves to NELs for turbidity and pH because of their known reliable treatment. Advanced systems have been in use in some form since the mid-1990s. An ATS is considered reliable, can consistently produce a discharge of less than 10 NTU, and has been used successfully at many sites in several states since 1995 to reduce turbidity to very low levels.[20]

This General Permit contains "compliance storm event" exceptions from the technology-based NELs for ATS discharges. The rationale is that technology-based requirements are developed assuming a certain design storm. In the case of ATS the industry-standard design storm is 10-year, 24-hour (as stated in Attachment F of this General Permit), so the compliance storm event has been established as the 10-year 24-hour event as well to provide consistency.

2. **Training**

Operator training is critical to the safe and efficient operation and maintenance of the ATS, and to ensure that all State Water Board monitoring and sampling requirements are met. The General Permit requires that all ATS operators have training specific to using ATS's liquid coagulants.

L. Post-Construction Requirements

Under past practices, new and redevelopment construction activities have resulted in modified natural watershed and stream processes. This is caused by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, increasing drainage density through pipes and channels, and altering the condition of stream channels through straightening, deepening, and armoring. These changes result in a drainage system where sediment transport capacity is increased and sediment supply is decreased. A receiving channel's response is dependent on dominant channel materials and its stage of adjustment.

Construction activity can lead to impairment of beneficial uses in two main ways. First, during the actual construction process, storm water discharges can negatively affect the chemical, biological, and physical properties of downstream receiving waters. Due to the disturbance of the landscape, the most likely pollutant is sediment, however pH and other non-visible pollutants are also of great concern. Second, after most construction activities are completed at a construction site, the finished project may result in significant modification of the site's response to precipitation. New development and redevelopment

[20] Currier, B., G. Minton, R. Pitt, L. Roesner, K. Schiff, M. Stenstrom, E. Strassler, and E. Strecker. 2006. The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities.

projects have almost always resulted in permanent post-construction water quality impacts because more precipitation ends up as runoff and less precipitation is intercepted, evapotranspired, and infiltrated.

General Permit 99-08-DWQ required the SWPPP to include a description of all post-construction BMPs on a site and a maintenance schedule. An effective storm water management strategy must address the full suite of storm events (water quality, channel protection, overbank flood protection, extreme flood protection) (Figure 2).

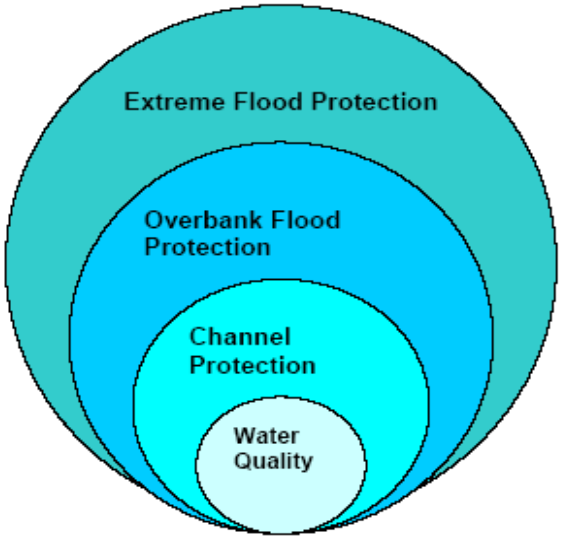

Figure 2 - Suite of Storm Events

The post-construction storm water performance standards in this General Permit specifically address water quality and channel protection events. Overbank flood protection and extreme flood protection events are traditionally dealt with in local drainage and flood protection ordinances. However, measures in this General Permit to address water quality and channel protection also reduce overbank and extreme flooding impacts. This General Permit aims to match post-construction runoff to pre-construction runoff for the 85th percentile storm event, which not only reduces the risk of impact to the receiving water's channel morphology but also provides some protection of water quality.

This General Permit clarifies that its runoff reduction requirements only apply to projects that lie outside of jurisdictions covered by a Standard Urban Storm water Management Plan (SUSMP) (or other more protective) post-construction requirements in either Phase I or Phase II permits.

Figures 3 and 4, below, show the General Permit enrollees (to Order 99-08-DWQ, as of March 10, 2008) overlaid upon a map with SUSMP (or more protective) areas in blue and purple. Areas without blue or purple indicate where the General Permit's runoff reduction requirements would actually apply.

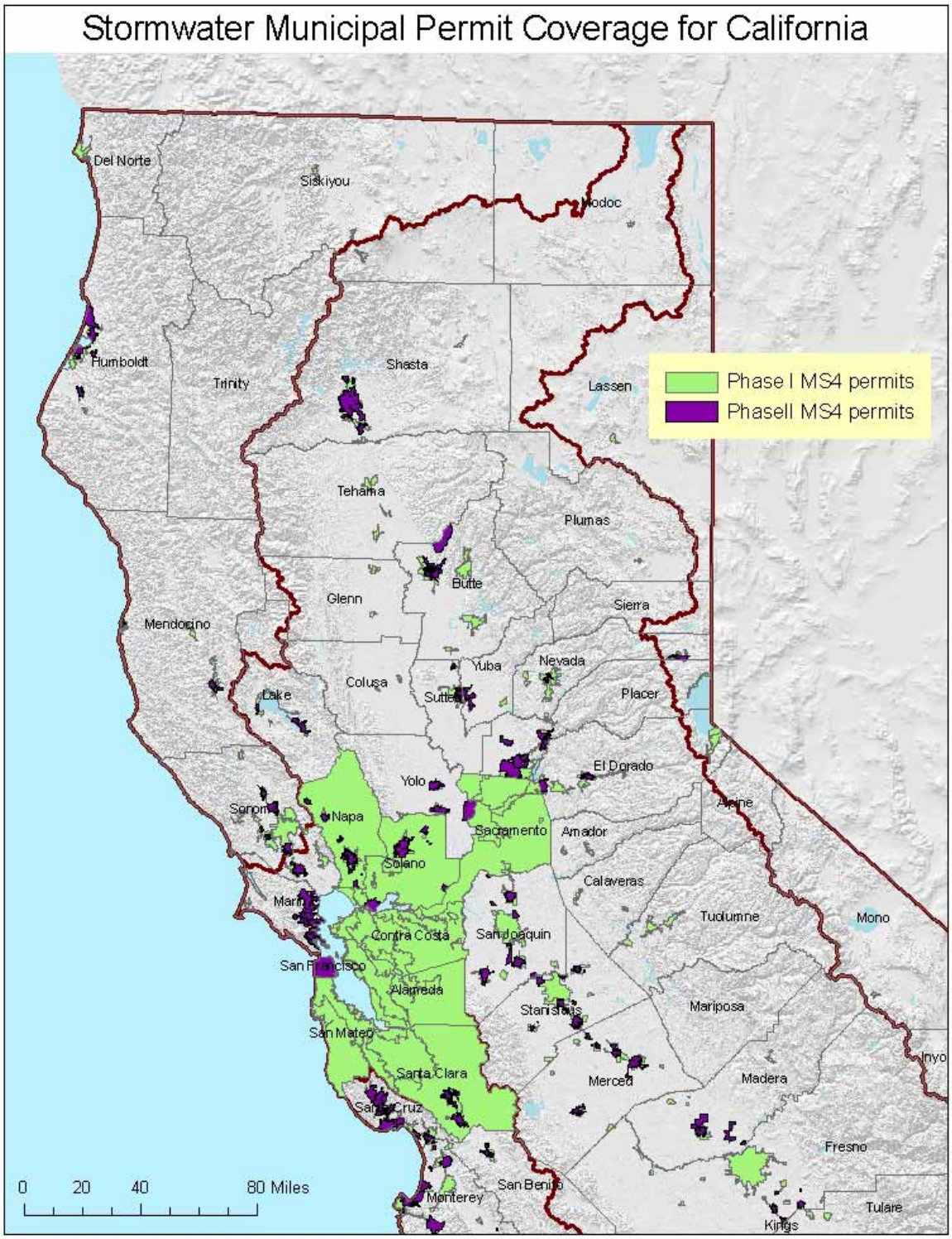

Figure 3 - Northern CA (2009) Counties / Cities With SUSMP-Plus Coverage

Figure 4 - Southern CA (2009) Counties / Cities With SUSMP-Plus Coverage

Water Quality:
This General Permit requires dischargers to replicate the pre-project runoff water balance (defined as the amount of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event, or the smallest storm event that generates runoff, whichever is larger. Contemporary storm water management generally routes these flows directly to the drainage system, increasing pollutant loads and potentially causing adverse effects on receiving waters. These smaller water quality events happen much more frequently than larger events and generate much higher pollutant loads on an annual basis. There are other adverse hydrological impacts that result from not designing according to the site's pre-construction water balance. In Maryland, Klein[21] noted that baseflow decreases as the extent of urbanization increases. Ferguson and Suckling[22] noted a similar relation in watersheds in Georgia. On Long Island, Spinello and Simmons[23] noted substantial decreases in base flow in intensely urbanized watersheds.

The permit emphasizes runoff reduction through on-site storm water reuse, interception, evapo-transpiration and infiltration through non-structural controls and conservation design measures (e.g., downspout disconnection, soil quality preservation/enhancement, interceptor trees). Employing these measures close to the source of runoff generation is the easiest and most cost-effective way to comply with the pre-construction water balance standard. Using low-tech runoff reduction techniques close to the source is consistent with a number of recommendations in the literature.[24] In many cases, BMPs implemented close to the source of runoff generation cost less than end-of the pipe measures.[25] Dischargers are given the option of using Appendix 2 to calculate the required runoff volume or a watershed process-based, continuous simulation model such as the EPA's Storm Water Management Model (SWMMM) or Hydrologic Simulation Program Fortran (HSPF). Such methods used by the discharger will be reviewed by the Regional Water Board upon NOT application.

Channel Protection:
In order to address channel protection, a basic understanding of fluvial geomorphic concepts is necessary. A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bankfull discharge (1.5 to 2 year recurrence interval). The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which the moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels.[26] Lane (1955 as cited in Rosgen 1996[27]) showed the generalized relationship between sediment load, sediment size, stream discharge and stream slope in Figure 5. A change in any one of these variables sets up a series of mutual adjustments in the companion variables with a resulting direct change in the physical characteristics of the stream channel.

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[21] Klein 1979 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.
[22] Ferguson and Suckling 1990 as cited Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.
[23] Center for Watershed Protection (CWP). 2000. The Practice of Watershed Protection: Techniques for protecting our nation's streams, lakes, rivers, and estuaries. Ellicott City, MD. 741 pp.
[24] Bay Area Storm Water Management Agencies Association (BASMAA). 1997. Start at the Source: Residential Site Planning and Design Guidance Manual for Storm Water Quality Protection. Palo Alto, CA;
McCuen, R.H. 2003 Smart Growth: hydrologic perspective. Journal of Professional Issues in Engineering Education and Practice. Vol (129), pp.151-154;
Moglen, G.E. and S. Kim. 2007. Impervious imperviousness-are threshold based policies a good idea? Journal of the American Planning Association, Vol 73 No. 2. pp 161-171.
[25] Delaware Department of natural Resources (DDNR). 2004. Green technology: The Delaware urban Runoff Management Approcah. Dover, DE. 117 pp.
[26] Dunne, T and L.B. Leopold. 1978. Water in Environmental Planning. San Francisco W.H. Freeman and Company
[27] Rosgen. D.L. 1996. Applied River Morphology. Pagosa Springs. Wildland Hydrology

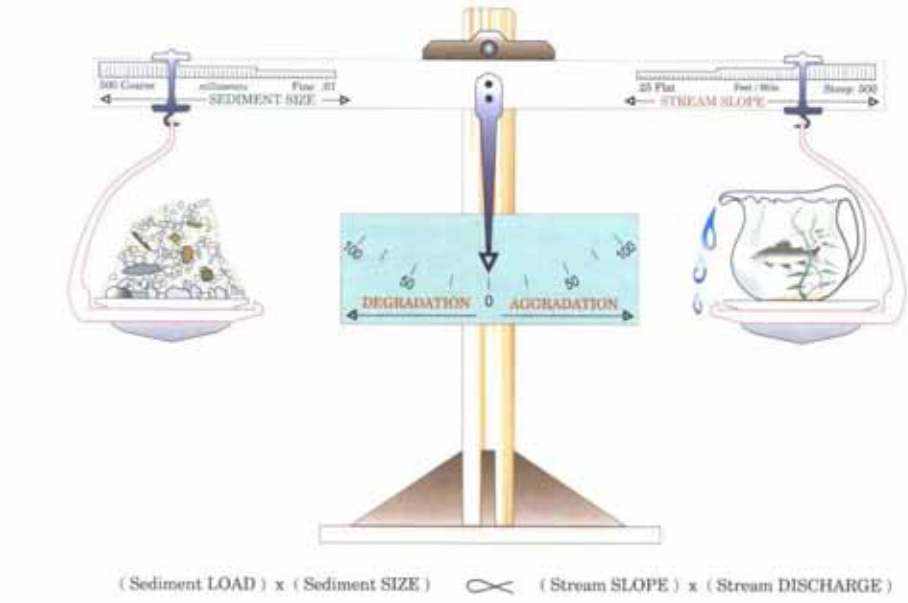

Figure 5 - Schematic of the Lane Relationship

After Lane (1955) as cited in Rosgen (1996)

Stream slope multiplied by stream discharge (the right side of the scale) is essentially an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (sediment load and sediment size represented on the left side of the scale).

During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels.[28] Most of this sediment is delivered to stream channels during large, episodic rain events.[29] This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et. al (1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 6).

[28] Goldman S.J., K. Jackson, and T.A. Bursztynsky. 1986. Erosion and Sediment Control Handbook. McGraw Hill. San Francisco.
[29] Wolman 1967 as cited in Paul, M.P. and J.L. Meyer. 2001. Streams in the Urban Landscape. *Annu. Rev.Ecol. Syst.* 32: 333-365.

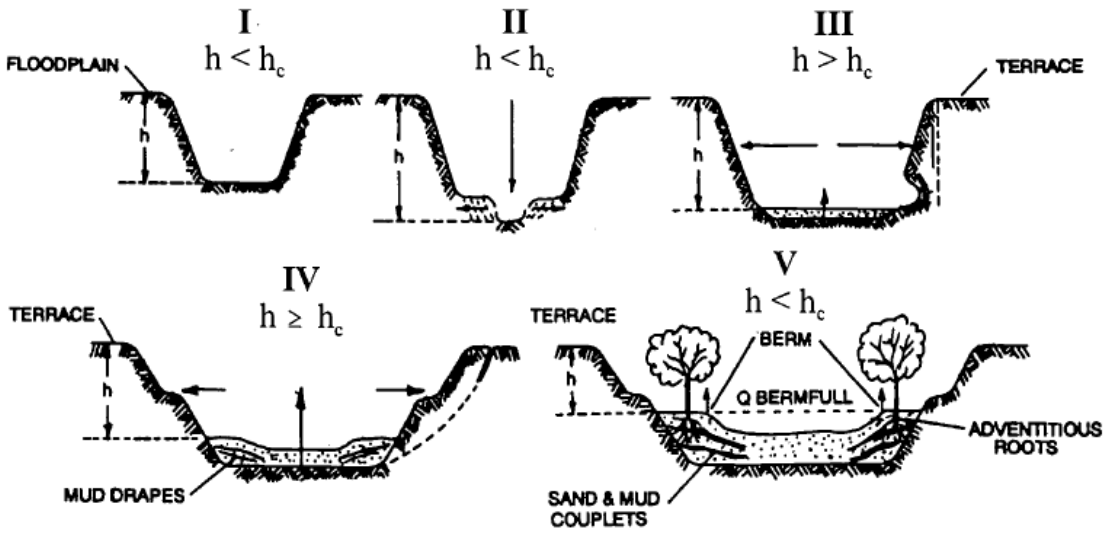

Figure 6 - Channel Changes Associated with Urbanization

After Incised Channel Evolution Sequence in Schumm et. al 1984

Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious area and compaction of pervious surfaces increase the frequency and volume of bankfull discharges.[30] Increased drainage density (miles of stream length per square mile of watershed) also negatively impacts receiving stream channels.[31] Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bankfull discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often "sediment starved" and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization.[32] This means that even if pre- and post-development stream power are the same, more erosion will occur in the post-development stage because the smaller particles are less resistant (provided they are non-cohesive).

[30] Booth, D. B. and C. R. Jackson. 1997. Urbanization of Aquatic Systems: Degradation Thresholds, Storm Water Detection, and the Limits of Mitigation. Journal of the American Water Resources Association Vol. 33, No.5, pp. 1077-1089.

[31] May, C.W. 1998. Cumulative effects of urbanization on small streams in the Puget Sound Lowland ecoregion. Conference proceedings from Puget Sound Research '98 held March 12, 13 1998 in Seattle, WA;
Santa Clara Valley Urban Runoff Pollution Prevention Program. 2002. Hydromodification Management Plan Literature Review. 80 pp.

[32] Finkenbine, J.K., D.S. Atwater, and D.S. Mavinic. 2000. Stream health after urbanization. *J. Am. Water Resour. Assoc.* 36:1149-60;
Pizzuto, J.E. W.S. Hession, and M. McBride. 2000. Comparing gravel-bed rivers in paired urban and rural catchments of southeastern Pennsylvania. *Geology* 28:79-82.

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power [33]and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel. After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening.[34] At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution. Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein and Zaleski 2005). [35]

Traditional structural water quality BMPs (e.g. detention basins and other devices used to store volumes of runoff) unless they are highly engineered to provide adequate flow duration control, do not adequately protect receiving waters from accelerated channel bed and bank erosion, do not address post-development increases in runoff volume, and do not mitigate the decline in benthic macroinvertebrate communities in the receiving waters[36] suggest that structural BMPs are not as effective in protecting aquatic communities as a continuous riparian buffer of native vegetation. This is supported by the findings of Zucker and White[37], where instream biological metrics were correlated with the extent of forested buffers.

This General Permit requires dischargers to maintain pre-development drainage densities and times of concentration in order to protect channels and encourages dischargers to implement setbacks to reduce channel slope and velocity changes that can lead to aquatic habitat degradation.

There are a number of other approaches for modeling fluvial systems, including statistical and physical models and simpler stream power models.[38] The use of these models in California is described in Stein and Zaleski (2005).[39] Rather than prescribe a specific one-size-fits-all modeling method in this permit, the State Water Board intends to develop a stream power and channel evolution model-based framework to assess channels and develop a hierarchy of suitable analysis methods and management strategies. In time, this framework may become a State Water Board water quality control policy.

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[33] Hammer 1973 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp;
Booth, D.B. 1990. Stream Channel Incision Following Drainage Basin Urbanization. *Water Resour. Bull.* 26:407-417.

[34] Trimble, S.W. 1997. Contribution of Stream Channel Erosion to Sediment Yield from an Urbanizing Watershed. *Science*: Vol. 278 (21), pp. 1442-1444.

[35] Stein, E.S. and S. Zaleski. 2005.Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475. 26 pp.

[36] Horner, R.R. 2006. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices (LID) for the San Diego Region. Available at: http://www.projectcleanwater.org/pdf/permit/case-study_lid.pdf.

[37] Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE. 117 pp.

[38] Finlayson, D.P. and D.R. Montgomery. 2003. Modeling large-scale fluvial erosion in geographic information systems. Geomorphology (53), pp. 147-164).

[39] Stein, E.S. and S. Zaleski. 2005.Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475. 26 pp.

Permit Linkage to Overbank and Extreme Flood Protection
Site design BMPs (e.g. rooftop and impervious disconnection, vegetated swales, setbacks and buffers) filter and settle out pollutants and provide for more infiltration than is possible for traditional centralized structural BMPs placed at the lowest point in a site. They provide source control for runoff and lead to a reduction in pollutant loads. When implemented, they also help reduce the magnitude and volume of larger, less frequent storm events (e.g., 10-yr, 24-hour storm and larger), thereby reducing the need for expensive flood control infrastructure. Nonstructural BMPs can also be a landscape amenity, instead of a large isolated structure requiring substantial area for ancillary access, buffering, screening and maintenance facilities.[25] The multiple benefits of using non-structural benefits will be critically important as the state's population increases and imposes strains upon our existing water resources.

Maintaining predevelopment drainage densities and times of concentration will help reduce post-development peak flows and volumes in areas not covered under a municipal permit. The most effective way to preserve drainage areas and maximize time of concentration is to implement landform grading, incorporate site design BMPs and implement distributed structural BMPs (e.g., bioretention cells, rain gardens, rain cisterns).

M. Storm Water Pollution Prevention Plans

USEPA's Construction General Permit requires that qualified personnel conduct inspections. USEPA defines qualified personnel as "a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity."[40] USEPA also suggests that qualified personnel prepare SWPPPs and points to numerous states that require certified professionals to be on construction sites at all times. States that currently have certification programs are Washington, Georgia, Florida, Delaware, Maryland, and New Jersey. The Permit 99-08-DWQ did not require that qualified personnel prepare SWPPPs or conduct inspections. However, to ensure that water quality is being protected, this General Permit requires that all SWPPPs be written, amended, and certified by a Qualified SWPPP Developer. A Qualified SWPPP Developer must possess one of the eight certifications and or registrations specified in this General Permit and effective two years after the adoption date of this General Permit, must have attended a State Water Board-sponsored or approved Qualified SWPPP Developer training course. Table 9 provides an overview of the criteria used in determining qualified certification titles for a QSD and QSP.

40 US Environmental Protection Agency. Stormwater Pollution Prevention Plans for Construction Activities. <http://cfpub.epa.gov/npdes/stormwater/swppp.cfm> and <http://www.epa.gov/npdes/pubs/sw_swppp_guide.pdf>.

Table 9 - Qualified SWPPP Developer/ Qualified SWPPP Practitioner Certification Criteria

Certification/ Title	Registered By	QSD/QSP	Certification Criteria
Professional Civil Engineer	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Professional Geologist or Engineering Geologist	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Landscape Architect	California	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Professional Hydrologist	American Institute of Hydrology	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites
Certified Professional in Erosion and Sediment Control™ (CPESC)	Enviro Cert International Inc.	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Inspector of Sediment and Erosion Control™ (CISEC)	Certified Inspector of Sediment and Erosion Control, Inc.	QSP	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Erosion, Sediment and Storm Water Inspector™ (CESSWI)	Enviro Cert International Inc.	QSP	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education
Certified Professional in Storm Water Quality™ (CPSWQ)	Enviro Cert International Inc.	Both	1. Approval Process 2. Code of Ethics 3. Accountability 4. Pre-requisites 5. Continuing Education

The previous versions of the General Permit required development and implementation of a SWPPP as the primary compliance mechanism. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm water and non-storm water discharges. The SWPPP must include BMPs that address source control, BMPs that address pollutant control, and BMPs that address treatment control.

This General Permit shifts some of the measures that were covered by this general requirement to specific permit requirements, each individually enforceable as a permit term. This General Permit emphasizes the use of appropriately selected, correctly installed and maintained pollution reduction BMPs. This approach provides the flexibility necessary to establish BMPs that can effectively address source control of pollutants during changing construction activities. These specific requirements also improve both the clarity and the enforceability of the General Permit so that the dischargers understand, and the public can determine whether the discharges are in compliance with, permit requirements.

The SWPPP must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The SWPPP must remain on the site during construction activities, commencing with the initial mobilization and ending with the termination of coverage under the General Permit. For LUPs the discharger shall make the SWPPP available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio or telephone. Once construction activities are complete, until stabilization is achieved, the SWPPP shall be available from the SWPPP contact listed in the PRDs

A SWPPP must be appropriate for the type and complexity of a project and will be developed and implemented to address project specific conditions. Some projects may have similarities or complexities, yet each project is unique in its progressive state that requires specific description and selection of BMPs needed to address all possible generated pollutants

N. Regional Water Board Authorities

Because this General Permit will be issued to thousands of construction sites across the State, the Regional Water Boards retain discretionary authority over certain issues that may arise from the discharges in their respective regions. This General Permit does not grant the Regional Water Boards any authority they do not otherwise have; rather, it merely emphasizes that the Regional Water Boards can take specific actions related to this General Permit. For example, the Regional Water Boards will be enforcing this General Permit and may need to adjust some requirements for a discharger based on the discharger's compliance history.

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Arnold Schwarzenegger
Governor

Division of Water Quality
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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE
ACTIVITIES

ORDER NO. 2009-0009-DWQ
NPDES NO**. CAS000002**

This Order was adopted by the State Water Resources Control Board on:	**September 2, 2009**
This Order shall become effective on:	**July 1, 2010**
This Order shall expire on:	**September 2, 2014**

IT IS HEREBY ORDERED, that this Order supersedes Order No. 99-08-DWQ except for enforcement purposes. The Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on September 2, 2009.

AYE: Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

NAY: Chairman Charles R. Hoppin

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board

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LIST OF ATTACHMENTS

LIST OF APPENDICES

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2009-0009-DWQ
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT NO. CAS000002

WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The federal Clean Water Act (CWA) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit (Title 33 United States Code (U.S.C.) §§ 1311 and 1342(p); also referred to as Clean Water Act (CWA) §§ 301 and 402(p)). The U.S. Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the CWA's mandate to control pollutants in storm water runoff discharges. (Title 40 Code of Federal Regulations (C.F.R.) Parts 122, 123, and 124). The federal statutes and regulations require discharges to surface waters comprised of storm water associated with construction activity, including demolition, clearing, grading, and excavation, and other land disturbance activities (except operations that result in disturbance of less than one acre of total land area and which are not part of a larger common plan of development or sale), to obtain coverage under an NPDES permit. The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate pollutants in storm water runoff. The NPDES permit must also include additional requirements necessary to implement applicable water quality standards.

2. This General Permit authorizes discharges of storm water associated with construction activity so long as the dischargers comply with all requirements, provisions, limitations and prohibitions in the permit. In addition, this General Permit regulates the discharges of storm water associated with construction activities from all Linear Underground/Overhead Projects resulting in the disturbance of greater than or equal to one acre (Attachment A).

3. This General Permit regulates discharges of pollutants in storm water associated with construction activity (storm water discharges) to waters of the United States from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface.

4. This General Permit does not preempt or supersede the authority of local storm water management agencies to prohibit, restrict, or control storm water discharges to municipal separate storm sewer systems or other watercourses within their jurisdictions.

5. This action to adopt a general NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), pursuant to Section 13389 of the California Water Code.

6. Pursuant to 40 C.F.R. § 131.12 and State Water Board Resolution No. 68-16,[1] which incorporates the requirements of § 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality standards, and are therefore consistent with those provisions. Compliance with this General Permit will result in improvements in water quality.

7. This General Permit serves as an NPDES permit in compliance with CWA § 402 and will take effect on July 1, 2010 by the State Water Board provided the Regional Administrator of the U.S. EPA has no objection. If the U.S. EPA Regional Administrator objects to its issuance, the General Permit will not become effective until such objection is withdrawn.

8. Following adoption and upon the effective date of this General Permit, the Regional Water Quality Control Boards (Regional Water Boards) shall enforce the provisions herein.

9. Regional Water Boards establish water quality standards in Basin Plans. The State Water Board establishes water quality standards in various statewide plans, including the California Ocean Plan. U.S. EPA establishes water quality standards in the National Toxic Rule (NTR) and the California Toxic Rule (CTR).

[1] Resolution No. 68-16 generally requires that existing water quality be maintained unless degradation is justified based on specific findings.

10. This General Permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA § 404 and does not constitute a waiver of water quality certification under CWA § 401.

11. The primary storm water pollutant at construction sites is excess sediment. Excess sediment can cloud the water, which reduces the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways. Sediment also transports other pollutants such as nutrients, metals, and oils and greases.

12. Construction activities can impact a construction site's runoff sediment supply and transport characteristics. These modifications, which can occur both during and after the construction phase, are a significant cause of degradation of the beneficial uses established for water bodies in California. Dischargers can avoid these effects through better construction site design and activity practices.

13. This General Permit recognizes four distinct phases of construction activities. The phases are Grading and Land Development Phase, Streets and Utilities Phase, Vertical Construction Phase, and Final Landscaping and Site Stabilization Phase. Each phase has activities that can result in different water quality effects from different water quality pollutants. This General Permit also recognizes inactive construction as a category of construction site type.

14. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable requirements.

15. Following public notice in accordance with State and Federal laws and regulations, the State Water Board heard and considered all comments and testimony in a public hearing on 06/03/2009. The State Water Board has prepared written responses to all significant comments.

16. Construction activities obtaining coverage under the General Permit may have multiple discharges subject to requirements that are specific to general, linear, and/or active treatment system discharge types.

17. The State Water Board may reopen the permit if the U.S. EPA adopts a final effluent limitation guideline for construction activities.

B. Activities Covered Under the General Permit

18. Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre.

19. Construction activity that results in land surface disturbances of less than one acre if the construction activity is part of a larger common plan of development or the sale of one or more acres of disturbed land surface.

20. Construction activity related to residential, commercial, or industrial development on lands currently used for agriculture including, but not limited to, the construction of buildings related to agriculture that are considered industrial pursuant to U.S. EPA regulations, such as dairy barns or food processing facilities.

21. Construction activity associated with Linear Underground/Overhead Utility Projects (LUPs) including, but not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

22. Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities.[2]

23. Storm water discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction sites that intend to disturb one or more acres of land within the jurisdictional boundaries of a CWA § 404 permit should contact the appropriate Regional Water Board to determine whether this permit applies to the site.

[2] Pursuant to the Ninth Circuit Court of Appeals' decision in *NRDC v. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the U.S. EPA's petition for reconsideration in November 2008, oil and gas construction activities discharging storm water contaminated only with sediment are no longer exempt from the NPDES program.

C. Activities Not Covered Under the General Permit

24. Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

25. Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation.

26. Discharges of storm water from areas on tribal lands; construction on tribal lands is regulated by a federal permit.

27. Construction activity and land disturbance involving discharges of storm water within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Board has adopted its own permit to regulate storm water discharges from construction activity in the Lake Tahoe Hydrologic Unit (Regional Water Board 6SLT). Owners of construction sites in this watershed must apply for the Lahontan Regional Water Board permit rather than the statewide Construction General Permit.

28. Construction activity that disturbs less than one acre of land surface, and that is not part of a larger common plan of development or the sale of one or more acres of disturbed land surface.

29. Construction activity covered by an individual NPDES Permit for storm water discharges.

30. Discharges from small (1 to 5 acre) construction activities with an approved Rainfall Erosivity Waiver authorized by U.S. EPA Phase II regulations certifying to the State Board that small construction activity will occur only when the Rainfall Erosivity Factor is less than 5 (“R” in the Revised Universal Soil Loss Equation).

31. Landfill construction activity that is subject to the Industrial General Permit.

32. Construction activity that discharges to Combined Sewer Systems.

33. Conveyances that discharge storm water runoff combined with municipal sewage.

34. Discharges of storm water identified in CWA § 402(*l*)(2), 33 U.S.C. § 1342(*l*)(2).

35. Discharges occurring in basins that are not tributary or hydrologically connected to waters of the United States (for more information contact your Regional Water Board).

D. Obtaining and Modifying General Permit Coverage

36. This General Permit requires all dischargers to electronically file all Permit Registration Documents (PRDs), Notices of Termination (NOT), changes of information, annual reporting, and other compliance documents required by this General Permit through the State Water Board's Storm water Multi-Application and Report Tracking System (SMARTS) website.

37. Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

38. This General Permit grants an exception from the Risk Determination requirements for existing sites covered under Water Quality Orders No. 99-08-DWQ, and No. 2003-0007-DWQ. For certain sites, adding additional requirements may not be cost effective. Construction sites covered under Water Quality Order No. 99-08-DWQ shall obtain permit coverage at the Risk Level 1. LUPs covered under Water Quality Order No. 2003-0007-DWQ shall obtain permit coverage as a Type 1 LUP. The Regional Water Boards have the authority to require Risk Determination to be performed on sites currently covered under Water Quality Orders No. 99-08-DWQ and No. 2003-0007-DWQ where they deem it necessary. The State Water Board finds that there are two circumstances when it may be appropriate for the Regional Water Boards to require a discharger that had filed an NOI under State Water Board Order No. 99-08-DWQ to recalculate the site's risk level. These circumstances are: (1) when the discharger has a demonstrated history of noncompliance with State Water Board Order No. 99-08-DWQ or; (2) when the discharger's site poses a significant risk of causing or contributing to an exceedance of a water quality standard without the implementation of the additional Risk Level 2 or 3 requirements.

E. Prohibitions

39. All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit. Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may

contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural Best Management Practices (BMPs)[3]. The State Water Board recognizes, however, that certain non-storm water discharges may be necessary for the completion of construction.

40. This General Permit prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

41. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the State Water Board and the nine Regional Water Boards.

42. Pursuant to the Ocean Plan, discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.

43. This General Permit prohibits the discharge of any debris[4] from construction sites. Plastic and other trash materials can cause negative impacts to receiving water beneficial uses. The State Water Board encourages the use of more environmentally safe, biodegradable materials on construction sites to minimize the potential risk to water quality.

F. Training

44. In order to improve compliance with and to maintain consistent enforcement of this General Permit, all dischargers are required to appoint two positions - the Qualified SWPPP Developer (QSD) and the Qualified SWPPP Practitioner (QSP) - who must obtain appropriate training. Together with the key stakeholders, the State and Regional Water Boards are leading the development of this curriculum through a collaborative organization called The Construction General Permit (CGP) Training Team.

45. The Professional Engineers Act (Bus. & Prof. Code section 6700, et seq.) requires that all engineering work must be performed by a California licensed engineer.

[3] BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practice to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

[4] Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

G. Determining and Reducing Risk

46. The risk of accelerated erosion and sedimentation from wind and water depends on a number of factors, including proximity to receiving water bodies, climate, topography, and soil type.

47. This General Permit requires dischargers to assess the risk level of a site based on both sediment transport and receiving water risk. This General Permit contains requirements for Risk Levels 1, 2 and 3, and LUP Risk Type 1, 2, and 3 (Attachment A). Risk levels are established by determining two factors: first, calculating the site's sediment risk; and second, receiving water risk during periods of soil exposure (i.e. grading and site stabilization). Both factors are used to determine the site-specific Risk Level(s). LUPs can be determined to be Type 1 based on the flowchart in Attachment A.1.

48. Although this General Permit does not mandate specific setback distances, dischargers are encouraged to set back their construction activities from streams and wetlands whenever feasible to reduce the risk of impacting water quality (e.g., natural stream stability and habitat function). Because there is a reduced risk to receiving waters when setbacks are used, this General Permit gives credit to setbacks in the risk determination and post-construction storm water performance standards. The risk calculation and runoff reduction mechanisms in this General Permit are expected to facilitate compliance with any Regional Water Board and local agency setback requirements, and to encourage voluntary setbacks wherever practicable.

49. Rain events can occur at any time of the year in California. Therefore, a Rain Event Action Plan (REAP) is necessary for Risk Level 2 and 3 traditional construction projects (LUPs exempt) to ensure that active construction sites have adequate erosion and sediment controls implemented prior to the onset of a storm event, even if construction is planned only during the dry season.

50. Soil particles smaller than 0.02 millimeters (mm) (i.e., finer than medium silt) do not settle easily using conventional measures for sediment control (i.e., sediment basins). Given their long settling time, dislodging these soils results in a significant risk that fine particles will be released into surface waters and cause unacceptable downstream impacts. If operated correctly, an Active Treatment System (ATS[5]) can prevent or reduce the release of fine particles from construction sites.

[5] An ATS is a treatment system that employs chemical coagulation, chemical flocculation, or electro coagulation in order to reduce turbidity caused by fine suspended sediment.

Use of an ATS can effectively reduce a site's risk of impacting receiving waters.

51. Dischargers located in a watershed area where a Total Maximum Daily Load (TMDL) has been adopted or approved by the Regional Water Board or U.S. EPA may be required by a separate Regional Water Board action to implement additional BMPs, conduct additional monitoring activities, and/or comply with an applicable waste load allocation and implementation schedule. Such dischargers may also be required to obtain an individual Regional Water Board permit specific to the area.

H. Effluent Standards

52. The State Water Board convened a blue ribbon panel of storm water experts that submitted a report entitled, “The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities,” dated June 19, 2006. The panel concluded that numeric limits or action levels are technically feasible to control construction storm water discharges, provided that certain conditions are considered. The panel also concluded that numeric effluent limitations (NELs) are feasible for discharges from construction sites that utilize an ATS. The State Water Board has incorporated the expert panel’s suggestions into this General Permit, which includes both numeric action levels (NALs) and NELs for pH and turbidity, and special numeric limits for ATS discharges.

Numeric Effluent Limitations

53. Discharges of storm water from construction activities may become contaminated from alkaline construction materials resulting in high pH (greater than pH 7). Alkaline construction materials include, but are not limited to, hydrated lime, concrete, mortar, cement kiln dust (CKD), Portland cement treated base (CTB), fly ash, recycled concrete, and masonry work. This General Permit includes an NEL for pH (6.0-9.0) that applies only at sites that exhibit a "high risk of high pH discharge." A "high risk of high pH discharge" can occur during the complete utilities phase, the complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations to the background pH of any discharges.

54. For Risk Level 3 discharges, this General Permit establishes technology-based, numeric effluent limitations (NELs) for turbidity of 500 NTU. Exceedances of the turbidity NEL constitutes a violation of this General Permit.

55. This General Permit establishes a 5 year, 24 hour (expressed in inches of rainfall) Compliance Storm Event exemption from the technology-based NELs for Risk Level 3 dischargers.

Determining Compliance with Numeric Limitations

56. This General Permit sets a pH NAL of 6.5 to 8.5, and a turbidity NAL of 250 NTU. The purpose of the NAL and its associated monitoring requirement is to provide operational information regarding the performance of the measures used at the site to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges. The NALs in this General Permit for pH and turbidity are not directly enforceable and do not constitute NELs.

57. This General Permit requires dischargers with NAL exceedances to immediately implement additional BMPs and revise their Storm Water Pollution Prevention Plans (SWPPPs) accordingly to either prevent pollutants and authorized non-storm water discharges from contaminating storm water, or to substantially reduce the pollutants to levels consistently below the NALs. NAL exceedances are reported in the State Water Boards SMARTS system, and the discharger is required to provide an NAL Exceedance Report when requested by a Regional Water Board.

58. If run-on is caused by a forest fire or any other natural disaster, then NELs do not apply.

59. Exceedances of the NELs are a violation of this Permit. This General Permit requires dischargers with NEL exceedances to implement additional monitoring, BMPs, and revise their SWPPPs accordingly. Dischargers are required to notify the State and Regional Water Boards of the violation through the State Water Boards SMARTs system, and provide an NEL Violation Report sharing additional information concerning the NEL exceedance.

I. Receiving Water Limitations

60. This General Permit requires all enrolled dischargers to determine the receiving waters potentially affected by their discharges and to comply with all applicable water quality standards, including any more stringent standards applicable to a water body.

J. Sampling, Monitoring, Reporting and Record Keeping

61. Visual monitoring of storm water and non-storm water discharges is required for all sites subject to this General Permit.

62. Records of all visual monitoring inspections are required to remain on-site during the construction period and for a minimum of three years.

63. For all Risk Level 3 and Risk Level 2 sites, this General Permit requires effluent monitoring for pH and turbidity. Sampling, analysis and monitoring requirements for effluent monitoring for pH and turbidity are contained in this General Permit.

64. Risk Level 3 sites in violation of the Numeric Effluent Limitations contained in this General Permit and with direct discharges to receiving water are required to conduct receiving water monitoring.

65. For Risk Level 3 sites larger than 30 acres and with direct discharges to receiving waters, this General Permit requires bioassessment sampling before and after site completion to determine if significant degradation to the receiving water's biota has occurred. Bioassessment sampling guidelines are contained in this General Permit.

66. A summary and evaluation of the sampling and analysis results will be submitted in the Annual Reports.

67. This General Permit contains sampling, analysis and monitoring requirements for non-visible pollutants at all sites subject to this General Permit.

68. Compliance with the General Permit relies upon dischargers to electronically self-report any discharge violations and to comply with any Regional Water Board enforcement actions.

69. This General Permit requires that all dischargers maintain a paper or electronic copy of all required records for three years from the date generated or date submitted, whichever is last. These records must be available at the construction site until construction is completed. For LUPs, these documents may be retained in a crew member's vehicle and made available upon request.

K. Active Treatment System (ATS) Requirements

70. Active treatment systems add chemicals to facilitate flocculation, coagulation and filtration of suspended sediment particles. The uncontrolled release of these chemicals to the environment can negatively affect the beneficial uses of receiving waters and/or degrade water quality (e.g., acute and chronic toxicity). Additionally, the batch storage and treatment of storm water through an ATS' can potentially

cause physical impacts on receiving waters if storage volume is inadequate or due to sudden releases of the ATS batches and improperly designed outfalls.

71. If designed, operated and maintained properly an ATS can achieve very high removal rates of suspended sediment (measured as turbidity), albeit at sometimes significantly higher costs than traditional erosion/sediment control practices. As a result, this General Permit establishes NELs consistent with the expected level of typical ATS performance.

72. This General Permit requires discharges of storm water associated with construction activity that undergo active treatment to comply with special operational and effluent limitations to ensure that these discharges do not adversely affect the beneficial uses of the receiving waters or cause degradation of their water quality.

73. For ATS discharges, this General Permit establishes technology-based NELs for turbidity.

74. This General Permit establishes a 10 year, 24 hour (expressed in inches of rainfall) Compliance Storm Event exemption from the technology-based numeric effluent limitations for ATS discharges. Exceedances of the ATS turbidity NEL constitutes a violation of this General Permit.

L. Post-Construction Requirements

75. This General Permit includes performance standards for post-construction that are consistent with State Water Board Resolution No. 2005-0006, "Resolution Adopting the Concept of Sustainability as a Core Value for State Water Board Programs and Directing Its Incorporation," and 2008-0030, “Requiring Sustainable Water Resources Management.“ The requirement for all construction sites to match pre-project hydrology will help ensure that the physical and biological integrity of aquatic ecosystems are sustained. This “runoff reduction” approach is analogous in principle to Low Impact Development (LID) and will serve to protect related watersheds and waterbodies from both hydrologic-based and pollution impacts associated with the post-construction landscape.

76. LUP projects are not subject to post-construction requirements due to the nature of their construction to return project sites to pre-construction conditions.

M. Storm Water Pollution Prevention Plan Requirements

77. This General Permit requires the development of a site-specific SWPPP. The SWPPP must include the information needed to demonstrate compliance with all requirements of this General Permit, and must be kept on the construction site and be available for review. The discharger shall ensure that a QSD develops the SWPPP.

78. To ensure proper site oversight, this General Permit requires a Qualified SWPPP Practitioner to oversee implementation of the BMPs required to comply with this General Permit.

N. Regional Water Board Authorities

79. Regional Water Boards are responsible for implementation and enforcement of this General Permit. A general approach to permitting is not always suitable for every construction site and environmental circumstances. Therefore, this General Permit recognizes that Regional Water Boards must have some flexibility and authority to alter, approve, exempt, or rescind permit authority granted under this General Permit in order to protect the beneficial uses of our receiving waters and prevent degradation of water quality.

IT IS HEREBY ORDERED that all dischargers subject to this General Permit shall comply with the following conditions and requirements (including all conditions and requirements as set forth in Attachments A, B, C, D, E and F)[6]:

II. CONDITIONS FOR PERMIT COVERAGE

A. Linear Underground/Overhead Projects (LUPs)

1. Linear Underground/Overhead Projects (LUPs) include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g. telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, (a) those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment, and associated ancillary facilities); and include, but are not limited to, (b) underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/ or pavement repair or replacement, and stockpile/borrow locations.

2. The utility company, municipality, or other public or private company or agency that owns or operates the linear underground/overhead project is responsible for obtaining coverage under the General Permit where the construction of pipelines, utility lines, fiber-optic cables, or other linear underground/overhead projects will occur across several properties unless the LUP construction activities are covered under another construction storm water permit.

3. Only LUPs shall comply with the conditions and requirements in Attachment A, A.1 & A.2 of this Order. The balance of this Order is not applicable to LUPs except as indicated in Attachment A.

B. Obtaining Permit Coverage Traditional Construction Sites

[6] These attachments are part of the General Permit itself and are not separate documents that are capable of being updated independently by the State Water Board.

1. The Legally Responsible Person (LRP) (see Special Provisions, Electronic Signature and Certification Requirements, Section IV.I.1) must obtain coverage under this General Permit.

2. To obtain coverage, the LRP must electronically file Permit Registration Documents (PRDs) prior to the commencement of construction activity. Failure to obtain coverage under this General Permit for storm water discharges to waters of the United States is a violation of the CWA and the California Water Code.

3. PRDs shall consist of:

   a. Notice of Intent (NOI)
   b. Risk Assessment (Section VIII)
   c. Site Map
   d. Storm Water Pollution Prevention Plan (Section XIV)
   e. Annual Fee
   f. Signed Certification Statement

   Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

   Attachment B contains additional PRD information. Dischargers must electronically file the PRDs, and mail the appropriate annual fee to the State Water Board.

4. This permit is effective on July 1, 2010.

   a. **Dischargers Obtaining Coverage On or After July 1, 2010:** All dischargers requiring coverage on or after July 1, 2010, shall electronically file their PRDs prior to the commencement of construction activities, and mail the appropriate annual fee no later than seven days prior to the commencement of construction activities. Permit coverage shall not commence until the PRDs and the annual fee are received by the State Water Board, and a WDID number is assigned and sent by SMARTS.

   b. **Dischargers Covered Under 99-08-DWQ and 2003-0007-DWQ:** Existing dischargers subject to State Water Board Order No. 99-08-DWQ (existing dischargers) will continue coverage under 99-08-DWQ until July 1, 2010. After July 1, 2010, all NOIs subject to State Water Board Order No. 99-08-DWQ will be terminated. Existing dischargers shall electronically file their PRDs no later than

July 1, 2010. If an existing discharger's site acreage subject to the annual fee has changed, it shall mail a revised annual fee no less than seven days after receiving the revised annual fee notification, **or else lose permit coverage**. All existing dischargers shall be exempt from the risk determination requirements in Section VIII of this General Permit until two years after permit adoption. All existing dischargers are therefore subject to Risk Level 1 requirements regardless of their site's sediment and receiving water risks. However, a Regional Board retains the authority to require an existing discharger to comply with the Section VIII risk determination requirements.

5. The discharger is only considered covered by this General Permit upon receipt of a Waste Discharger Identification (WDID) number assigned and sent by the State Water Board Storm water Multi-Application and Report Tracking System (SMARTS). In order to demonstrate compliance with this General Permit, the discharger must obtain a WDID number and must present documentation of a valid WDID upon demand.

6. During the period this permit is subject to review by the U.S. EPA, the prior permit (State Water Board Order No. 99-08-DWQ) remains in effect. Existing dischargers under the prior permit will continue to have coverage under State Water Board Order No. 99-08-DWQ until this General Permit takes effect on July 1, 2010. Dischargers who complete their projects and electronically file an NOT prior to July 1, 2010, are not required to obtain coverage under this General Permit.

7. Small Construction Rainfall Erosivity Waiver

   EPA's Small Construction Erosivity Waiver applies to sites between one and five acres demonstrating that there are no adverse water quality impacts.

   Dischargers eligible for a Rainfall Erosivity Waiver based on low erosivity potential shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Board's SMARTS system, certifying that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five. Where the LRP changes or another LRP is added during construction, the new LRP must also submit a waiver certification through the SMARTS system.

   If a small construction site continues beyond the projected completion date given on the waiver certification, the LRP shall recalculate the rainfall erosivity factor for the new project duration and submit this

information through the SMARTS system. If the new R factor is below five (5), the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver onsite. The LRP shall submit the new waiver certification 30 days prior to the projected completion date listed on the original waiver form to assure exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, the LRP shall be required to apply for coverage under this Order.

8. In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

C. Revising Permit Coverage for Change of Acreage or New Ownership

1. The discharger may reduce or increase the total acreage covered under this General Permit when a portion of the site is complete and/or conditions for termination of coverage have been met (See Section II.D Conditions for Termination of Coverage); when ownership of a portion of the site is sold to a different entity; or when new acreage, subject to this General Permit, is added to the site.

2. Within 30 days of a reduction or increase in total disturbed acreage, the discharger shall electronically file revisions to the PRDs that include:

   a. A revised NOI indicating the new project size;

   b. A revised site map showing the acreage of the site completed, acreage currently under construction, acreage sold/transferred or added, and acreage currently stabilized in accordance with the Conditions for Termination of Coverage in Section II.D below.

   c. SWPPP revisions, as appropriate; and

   d. Certification that any new landowners have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address of the new landowner.

   e. If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

3. The discharger shall continue coverage under the General Permit for any parcel that has not achieved "Final Stabilization" as defined in Section II.D.

4. When an LRP owns property with active General Permit coverage, and the LRP sells the property, or a parcel thereof, to another person, that person shall become an LRP with respect to whatever parcel was sold. The existing LRP shall inform the new LRP of the General Permit's requirements. In order for the new LRP to continue the construction activity on its parcel of property, the new LRP, or the new LRP's approved signatory, must submit PRDs in accordance with this General Permit's requirements.

D. Conditions for Termination of Coverage

1. Within 90 days of when construction is complete or ownership has been transferred, the discharger shall electronically file a Notice of Termination (NOT), a final site map, and photos through the State Water Boards SMARTS system. Filing a NOT certifies that all General Permit requirements have been met. The Regional Water Board will consider a construction site complete only when all portions of the site have been transferred to a new owner, or all of the following conditions have been met:

   a. For purposes of "final stabilization," the site will not pose any additional sediment discharge risk than it did prior to the commencement of construction activity;

   b. There is no potential for construction-related storm water pollutants to be discharged into site runoff;

   c. Final stabilization has been reached;

   d. Construction materials and wastes have been disposed of properly;

   e. Compliance with the Post-Construction Standards in Section XIII of this General Permit has been demonstrated;

   f. Post-construction storm water management measures have been installed and a long-term maintenance plan[7] has been established; and

[7] For the purposes of this requirement a long-term maintenance plan will be designed for a minimum of five years, and will describe the procedures to ensure that the post-construction storm water management measures are adequately maintained.

g. All construction-related equipment, materials and any temporary BMPs no longer needed are removed from the site.

2. The discharger shall certify that final stabilization conditions are satisfied in their NOT. Failure to certify shall result in continuation of permit coverage and annual billing.

3. The NOT must demonstrate through photos, RUSLE or RUSLE2, or results of testing and analysis that the site meets all of the conditions above (Section II.D.1) and the final stabilization condition (Section II.D.1.a) is attained by one of the following methods:

   a. "70% final cover method," no computational proof required

      OR:

   b. "RUSLE or RUSLE2 method," computational proof required

      OR:

   c. "Custom method", the discharger shall demonstrate in some other manner than a or b, above, that the site complies with the "final stabilization" requirement in Section II.D.1.a.

III. DISCHARGE PROHIBITIONS

A. Dischargers shall not violate any discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans. Waste discharges to Areas of Special Biological Significance (ASBS) are prohibited by the California Ocean Plan, unless granted an exception issued by the State Water Board.

B. All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit.

C. Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. The discharge of non-storm water is authorized under the following conditions:

1. The discharge does not cause or contribute to a violation of any water quality standard;

2. The discharge does not violate any other provision of this General Permit;

3. The discharge is not prohibited by the applicable Basin Plan;

4. The discharger has included and implemented specific BMPs required by this General Permit to prevent or reduce the contact of the non-storm water discharge with construction materials or equipment.

5. The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;

6. The discharge is monitored and meets the applicable NALs and NELs; and

7. The discharger reports the sampling information in the Annual Report.

If any of the above conditions are not satisfied, the discharge is not authorized by this General Permit. The discharger shall notify the Regional Water Board of any anticipated non-storm water discharges not already authorized by this General Permit or another NPDES permit, to determine whether a separate NPDES permit is necessary.

D. Debris resulting from construction activities are prohibited from being discharged from construction sites.

E. When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the discharger shall have those soils sampled and tested to ensure proper handling and public safety measures are implemented. The discharger shall notify the appropriate local, State, and federal agency(ies) when contaminated soil is found at a construction site, and will notify the appropriate Regional Water Board.

IV. SPECIAL PROVISIONS

A. Duty to Comply

1. The discharger shall comply with all of the conditions of this General Permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General Permit coverage.

2. The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

B. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

2. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the dischargers so notified.

C. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

D. Duty to Mitigate

The discharger shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a discharger when necessary to achieve compliance with the conditions of this General Permit.

F. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

G. Duty to Maintain Records and Provide Information

1. The discharger shall maintain a paper or electronic copy of all required records, including a copy of this General Permit, for three years from the date generated or date submitted, whichever is last. These records shall be available at the construction site until construction is completed.

2. The discharger shall furnish the Regional Water Board, State Water Board, or U.S. EPA, within a reasonable time, any requested information to determine compliance with this General Permit. The discharger shall also furnish, upon request, copies of records that are required to be kept by this General Permit.

H. Inspection and Entry

The discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

3. Inspect at reasonable times the complete construction site, including any off-site staging areas or material storage areas, and the erosion/sediment controls; and

4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

I. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) and Notice of Terminations (NOTs) shall be electronically signed, certified, and submitted via SMARTS to the State Water Board. Either the Legally Responsible Person (LRP) or a person legally authorized to sign and certify PRDs and NOTs on behalf of the LRP (the LRP's Approved Signatory) must submit all information electronically via SMARTS.

    a. The LRP's Approved Signatory must be one of the following:

        i. For a corporation: a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (b) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

        ii. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

        iii. For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. The principal executive officer of a Federal agency includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA);

        iv. For the military: Any military officer who has been designated.

        v. For a public university: An authorized university official

b. Changes to Authorization. If an approved signatory's authorization is no longer accurate, a new authorization satisfying the requirements of paragraph (a) of this section must be submitted via SMARTS prior to or together with any reports, information or applications to be signed by an approved signatory.

2. All Annual Reports, or other information required by the General Permit (other than PRDs and NOTs) or requested by the Regional Water Board, State Water Board, U.S. EPA, or local storm water management agency shall be certified and submitted by the LRP or the LRP's approved signatory as described above.

J. Certification

Any person signing documents under Section IV.I above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

K. Anticipated Noncompliance

The discharger shall give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity, which may result in noncompliance with General Permit requirements.

L. Bypass

Bypass[8] is prohibited. The Regional Water Board may take enforcement action against the discharger for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage;[9]

[8] The intentional diversion of waste streams from any portion of a treatment facility

[9] Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventative maintenance;

3. The discharger submitted a notice at least ten days in advance of the need for a bypass to the Regional Water Board; or

4. The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. In such a case, the above bypass conditions are not applicable. The discharger shall submit notice of an unanticipated bypass as required.

M. Upset

1. A discharger that wishes to establish the affirmative defense of an upset[10] in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the discharger can identify the cause(s) of the upset

   b. The treatment facility was being properly operated by the time of the upset

   c. The discharger submitted notice of the upset as required; and

   d. The discharger complied with any remedial measures required

2. No determination made before an action of noncompliance occurs, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

3. In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof

[10] An exceptional incident in which there is unintentional and temporary noncompliance the technology based numeric effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

N. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the CWA.

P. Severability

The provisions of this General Permit are severable; and, if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Reopener Clause

This General Permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

R. Penalties for Violations of Permit Conditions

1. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500[11] per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

[11] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA.

S. Transfers

This General Permit is not transferable.

T. Continuation of Expired Permit

This General Permit continues in force and effect until a new General Permit is issued or the SWRCB rescinds this General Permit. Only those dischargers authorized to discharge under the expiring General Permit are covered by the continued General Permit.

V. EFFLUENT STANDARDS

A. Narrative Effluent Limitations

1. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

2. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

B. Numeric Effluent Limitations (NELs)

Table 1- Numeric Effluent Limitations, Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	Numeric Effluent Limitation
pH	Field test with calibrated portable instrument	Risk Level 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	N/A
		Risk Level 3			lower NAL = 6.5 upper NAL = 8.5	lower NEL = 6.0 upper NEL = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2	1	NTU	250 NTU	N/A
		Risk Level 3			250 NTU	500 NTU

1. Numeric Effluent Limitations (NELs):

   a. **Storm Event, Daily Average pH Limits –** For Risk Level 3 dischargers, the pH of storm water and non-storm water discharges

shall be within the ranges specified in Table 1 during any site phase where there is a "high risk of pH discharge."[12]

b. **Storm Event Daily Average Turbidity Limit –** For Risk Level 3 dischargers, the turbidity of storm water and non-storm water discharges shall not exceed 500 NTU.

2. If daily average sampling results are outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file monitoring results in violation within 5 business days of obtaining the results.

3. **Compliance Storm Event**:

   Discharges of storm water from Risk Level 3 sites shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for Risk Level 3 discharges is the 5 year, 24 hour storm (expressed in tenths of an inch of rainfall), as determined by using these maps:

   http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif
   http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif

   Compliance storm event verification shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

4. Dischargers shall not be required to comply with NELs if the site receives run-on from a forest fire or any other natural disaster.

C. Numeric Action Levels (NALs)

1. For Risk Level 2 and 3 dischargers, the lower storm event average NAL for pH is 6.5 pH units and the upper storm event average NAL for pH is 8.5 pH units. The discharger shall take actions as described below if the discharge is outside of this range of pH values.

[12] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

2. For Risk Level 2 and 3 dischargers, the NAL storm event daily average for turbidity is 250 NTU. The discharger shall take actions as described below if the discharge is outside of this range of turbidity values.

3. Whenever the results from a storm event daily average indicate that the discharge is below the lower NAL for pH, exceeds the upper NAL for pH, or exceeds the turbidity NAL (as listed in Table 1), the discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL exceedance and shall immediately implement corrective actions if they are needed.

4. The site evaluation shall be documented in the SWPPP and specifically address whether the source(s) of the pollutants causing the exceedance of the NAL:

    a. Are related to the construction activities and whether additional BMPs are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) determine what corrective action(s) were taken or will be taken and with a description of the schedule for completion.

        AND/OR:

    b. Are related to the run-on associated with the construction site location and whether additional BMPs measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) what corrective action(s) were taken or will be taken with a description of the schedule for completion.

VI. RECEIVING WATER LIMITATIONS

A. The discharger shall ensure that storm water discharges and authorized non-storm water discharges to any surface or ground water will not adversely affect human health or the environment.

B. The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

C. The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable Regional Water Board's Water Quality Control Plan (Basin Plan).

D. Dischargers located within the watershed of a CWA § 303(d) impaired water body, for which a TMDL has been approved by the U.S. EPA, shall comply with the approved TMDL if it identifies "construction activity" or land disturbance as a source of the pollution.

VII. TRAINING QUALIFICATIONS AND CERTIFICATION REQUIREMENTS

A. General

The discharger shall ensure that all persons responsible for implementing requirements of this General Permit shall be appropriately trained in accordance with this Section. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. Those responsible for preparing and amending SWPPPs shall comply with the requirements in this Section VII.

The discharger shall provide documentation of all training for persons responsible for implementing the requirements of this General Permit in the Annual Reports.

B. SWPPP Certification Requirements

1. **Qualified SWPPP Developer:** The discharger shall ensure that SWPPPs are written, amended and certified by a Qualified SWPPP Developer (QSD). A QSD shall have one of the following registrations or certifications, and appropriate experience, as required for:

   a. A California registered professional civil engineer;

   b. A California registered professional geologist or engineering geologist;

   c. A California registered landscape architect;

   d. A professional hydrologist registered through the American Institute of Hydrology;

   e. A Certified Professional in Erosion and Sediment Control (CPESC) ™ registered through Enviro Cert International, Inc.;

   f. A Certified Professional in Storm Water Quality (CPSWQ) ™ registered through Enviro Cert International, Inc.; or

   g. A professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET);

Effective two years after the adoption date of this General Permit, a QSD shall have attended a State Water Board-sponsored or approved QSD training course.

2. The discharger shall list the name and telephone number of the currently designated Qualified SWPPP Developer(s) in the SWPPP.

3. **Qualified SWPPP Practitioner:** The discharger shall ensure that all BMPs required by this General Permit are implemented by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-storm water and storm water visual observations, sampling and analysis. Effective two years from the date of adoption of this General Permit, a QSP shall be either a QSD or have one of the following certifications:

   a. A certified erosion, sediment and storm water inspector registered through Enviro Cert International, Inc.; or

   b. A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

   Effective two years after the adoption date of this General Permit, a QSP shall have attended a State Water Board-sponsored or approved QSP training course.

4. The LRP shall list in the SWPPP, the name of any Approved Signatory, and provide a copy of the written agreement or other mechanism that provides this authority from the LRP in the SWPPP.

5. The discharger shall include, in the SWPPP, a list of names of all contractors, subcontractors, and individuals who will be directed by the Qualified SWPPP Practitioner. This list shall include telephone numbers and work addresses. Specific areas of responsibility of each subcontractor and emergency contact numbers shall also be included.

6. The discharger shall ensure that the SWPPP and each amendment will be signed by the Qualified SWPPP Developer. The discharger shall include a listing of the date of initial preparation and the date of each amendment in the SWPPP.

VIII. RISK DETERMINATION

The discharger shall calculate the site's sediment risk and receiving water risk during periods of soil exposure (i.e. grading and site stabilization) and use the calculated risks to determine a Risk Level(s) using the methodology in

Appendix 1. For any site that spans two or more planning watersheds,[13] the discharger shall calculate a separate Risk Level for each planning watershed. The discharger shall notify the State Water Board of the site's Risk Level determination(s) and shall include this determination as a part of submitting the PRDs. If a discharger ends up with more than one Risk Level determination, the Regional Water Board may choose to break the project into separate levels of implementation.

IX. RISK LEVEL 1 REQUIREMENTS

Risk Level 1 Dischargers shall comply with the requirements included in Attachment C of this General Permit.

X. RISK LEVEL 2 REQUIREMENTS

Risk Level 2 Dischargers shall comply with the requirements included in Attachment D of this General Permit.

XI. RISK LEVEL 3 REQUIREMENTS

Risk Level 3 Dischargers shall comply with the requirements included in Attachment E of this General Permit.

XII. ACTIVE TREATMENT SYSTEMS (ATS)

Dischargers choosing to implement an ATS on their site shall comply with all of the requirements in Attachment F of this General Permit.

[13] Planning watershed: defined by the Calwater Watershed documents as a watershed that ranges in size from approximately 3,000 to 10,000 acres http://cain.ice.ucdavis.edu/calwater/calwfaq.html, http://gis.ca.gov/catalog/BrowseRecord.epl?id=22175 .

XIII. POST-CONSTRUCTION STANDARDS

A. All dischargers shall comply with the following runoff reduction requirements unless they are located within an area subject to post-construction standards of an active Phase I or II municipal separate storm sewer system (MS4) permit that has an approved Storm Water Management Plan.

1. This provision shall take effect three years from the adoption date of this permit, or later at the discretion of the Executive Officer of the Regional Board.

2. The discharger shall demonstrate compliance with the requirements of this section by submitting with their NOI a map and worksheets in accordance with the instructions in Appendix 2. The discharger shall use non-structural controls unless the discharger demonstrates that non-structural controls are infeasible or that structural controls will produce greater reduction in water quality impacts.

3. The discharger shall, through the use of non-structural and structural measures as described in Appendix 2, replicate the pre-project water balance (for this permit, defined as the volume of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event (or the smallest storm event that generates runoff, whichever is larger). Dischargers shall inform Regional Water Board staff at least 30 days prior to the use of any structural control measure used to comply with this requirement. Volume that cannot be addressed using non-structural practices shall be captured in structural practices and approved by the Regional Water Board. When seeking Regional Board approval for the use of structural practices, dischargers shall document the infeasibility of using non-structural practices on the project site, or document that there will be fewer water quality impacts through the use of structural practices.

4. For sites whose disturbed area exceeds two acres, the discharger shall preserve the pre-construction drainage density (miles of stream length per square mile of drainage area) for all drainage areas within the area serving a first order stream[14] or larger stream and ensure that post-project time of runoff concentration is equal or greater than pre-project time of concentration.

[14] A first order stream is defined as a stream with no tributaries.

B. All dischargers shall implement BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed at the site (Post-construction BMPs).

XIV. SWPPP REQUIREMENTS

A. The discharger shall ensure that the Storm Water Pollution Prevention Plans (SWPPPs) for all traditional project sites are developed and amended or revised by a QSD. The SWPPP shall be designed to address the following objectives:

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;

2. Where not otherwise required to be under a Regional Water Board permit, all non-storm water discharges are identified and either eliminated, controlled, or treated;

3. Site BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the BAT/BCT standard;

4. Calculations and design details as well as BMP controls for site run-on are complete and correct, and

5. Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

B. To demonstrate compliance with requirements of this General Permit, the QSD shall include information in the SWPPP that supports the conclusions, selections, use, and maintenance of BMPs.

C. The discharger shall make the SWPPP available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone.

XV. REGIONAL WATER BOARD AUTHORITIES

A. In the case where the Regional Water Board does not agree with the discharger's self-reported risk level (e.g., they determine themselves to be a Level 1 Risk when they are actually a Level 2 Risk site), Regional Water Boards may either direct the discharger to reevaluate the Risk Level(s) for their site or terminate coverage under this General Permit.

B. Regional Water Boards may terminate coverage under this General Permit for dischargers who fail to comply with its requirements or where they determine that an individual NPDES permit is appropriate.

C. Regional Water Boards may require dischargers to submit a Report of Waste Discharge / NPDES permit application for Regional Water Board consideration of individual requirements.

D. Regional Water Boards may require additional Monitoring and Reporting Program Requirements, including sampling and analysis of discharges to sediment-impaired water bodies.

E. Regional Water Boards may require dischargers to retain records for more than the three years required by this General Permit.

XVI. ANNUAL REPORTING REQUIREMENTS

A. All dischargers shall prepare and electronically submit an Annual Report no later than September 1 of each year.

B. The discharger shall certify each Annual Report in accordance with the Special Provisions.

C. The discharger shall retain an electronic or paper copy of each Annual Report for a minimum of three years after the date the annual report is filed.

D. The discharger shall include storm water monitoring information in the Annual Report consisting of:

1. a summary and evaluation of all sampling and analysis results, including copies of laboratory reports;

2. the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit");

3. a summary of all corrective actions taken during the compliance year;

4. identification of any compliance activities or corrective actions that were not implemented;

5. a summary of all violations of the General Permit;

6. the names of individual(s) who performed the facility inspections, sampling, visual observation (inspections), and/or measurements;

7. the date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge); and

8. the visual observation and sample collection exception records and reports specified in Attachments C, D, and E.

E. The discharger shall provide training information in the Annual Report consisting of:

1. documentation of all training for individuals responsible for all activities associated with compliance with this General Permit;

2. documentation of all training for individuals responsible for BMP installation, inspection, maintenance, and repair; and

3. documentation of all training for individuals responsible for overseeing, revising, and amending the SWPPP.

ATTACHMENT A
Linear Underground/ Overhead Requirements

All Linear Underground/Overhead project dischargers who submit permit registration documents (PRDs) indicating their intention to be regulated under the provisions of this General Permit shall comply with the following:

A. DEFINITION OF LINEAR UNDERGROUND/OVERHEAD PROJECTS

1. Linear Underground/Overhead Projects (LUPs) include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquiescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio, or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, (a) those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment, and associated ancillary facilities); and include, but are not limited to, (b) underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/ or pavement repair or replacement, and stockpile/borrow locations.

2. LUP evaluation shall consist of two tasks:

a. Confirm that the project or project section(s) qualifies as an LUP. The State Water Board website contains a project determination guidance flowchart. http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

b. Identify which Type(s) (1, 2 or 3 described in Section I below) are applicable to the project or project sections based on project sediment and receiving water risk. (See Attachment A.1)

3. A Legally Responsible Person (LRP) for a Linear Underground/Overhead project is required to obtain CGP coverage under one or more permit registration document (PRD) electronic submittals to the State Water Board's Storm Water Multi-Application and Report Tracking (SMARTs) system. Attachment A.1 contains a flow chart to be used when determining if a linear project qualifies for coverage and to determine LUP Types. Since a LUP may be constructed within both developed and undeveloped locations and portions of LUPs may be constructed by different contractors, LUPs may be broken into logical permit sections. Sections may be determined based on portions of a project conducted by one contractor. Other situations may also occur, such as the time period in which the sections of a project will be constructed (e.g. project phases), for which separate permit coverage is possible. For projects that are broken into separate sections, a description of how each section relates to the overall project and the definition of the boundaries between sections shall be clearly stated.

4. Where construction activities transverse or enter into different Regional Water Board jurisdictions, LRPs shall obtain permit coverage for each Regional Water Board area involved prior to the commencement of construction activities.

5. Small Construction Rainfall Erosivity Waiver

EPA's Small Construction Erosivity Waiver applies to sites between one and five acres demonstrating that there are no adverse water quality impacts.

Dischargers eligible for a Rainfall Erosivity Waiver based on low erosivity potential shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Board's SMARTS system, certifying that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five. Where the LRP changes or another LRP is added during construction, the new LRP must also submit a waiver certification through the SMARTS system.

If a small linear construction site continues beyond the projected completion date given on the waiver certification, the LRP shall recalculate the rainfall erosivity factor for the new project duration and submit this information through the SMARTS system. If the new R factor is below five (5), the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver onsite. The LRP shall submit the new waiver certification 30 days prior to the projected completion date listed on the original waiver form to assure exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, the LRP shall be required to apply for coverage under this Order.

B. LINEAR PROJECT PERMIT REGISTRATION DOCUMENTS (PRDs)

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted. PRDs shall consist of the following:

1. Notice of Intent (NOI)

Prior to construction activities, the LRP of a proposed linear underground/overhead project shall utilize the processes and methods provided in Attachment A.2, Permit Registration Documents (PRDs) – General Instructions for Linear Underground/Overhead Projects to comply with the Construction General Permit.

2. Site Maps

LRPs submitting PRDs shall include at least 3 maps. The first map will be a zoomed[1] 1000-1500 ft vicinity map that shows the starting point of the project. The second will be a zoomed map of 1000-1500 ft showing the ending location of the project. The third will be a larger view vicinity map, 1000 ft to 2000 ft, displaying the entire project location depending on the project size, and indicating the LUP type (1, 2 or 3) areas within the total project footprint.

3. Drawings

LRPs submitting PRDs shall include a construction drawing(s) or other appropriate drawing(s) or map(s) that shows the locations of storm drain

[1] An image with a close-up/enhanced detailed view of site features that show minute details such as streets and neighboring structures.
Or: An image with a close-up/enhanced detailed view of the site's surrounding infrastructure.
Or: An image with a close up detailed view of the project and its surroundings.

inlets and waterbodies[2] that may receive discharges from the construction activities and that shows the locations of BMPs to be installed for all those BMPs that can be illustrated on the revisable drawing(s) or map(s). If storm drain inlets, waterbodies, and/or BMPs cannot be adequately shown on the drawing(s) or map(s) they should be described in detail within the SWPPP.

4. Storm Water Pollution Prevention Plan (SWPPP)

LUP dischargers shall comply with the SWPPP Preparation, Implementation, and Oversight requirements in Section K of this Attachment.

5. Contact information

LUP dischargers shall include contact information for all contractors (or subcontractors) responsible for each area of an LUP project. This should include the names, telephone numbers, and addresses of contact personnel. Specific areas of responsibility of each contact, and emergency contact numbers should also be included.

6. In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

C. LINEAR PROJECT TERMINATION OF COVERAGE REQUIREMENTS

The LRP may terminate coverage of an LUP when construction activities are completed by submitting an electronic notice of termination (NOT) through the State Water Board's SMARTS system. Termination requirements are different depending on the complexity of the LUP. An LUP is considered complete when: (a) there is no potential for construction-related storm water pollution; (b) all elements of the SWPPP have been completed; (c) construction materials and waste have been disposed of properly; (d) the site is in compliance with all local storm water management requirements; and (e) the LRP submits a notice of termination (NOT) and has received approval for termination from the appropriate Regional Water Board office.

1. LUP Stabilization Requirements

The LUP discharger shall ensure that all disturbed areas of the construction site are stabilized prior to termination of coverage under this General Permit. Final stabilization for the purposes of submitting an NOT

[2] Includes basin(s) that the MS4 storm sewer systems may drain to for Hydromodification or Hydrological Conditional of Concerns under the MS4 permits.

is satisfied when all soil disturbing activities are completed and one of the following criteria is met:

a. In disturbed areas that were vegetated prior to construction activities of the LUP, the area disturbed must be re-established to a uniform vegetative cover equivalent to 70 percent coverage of the preconstruction vegetative conditions. Where preconstruction vegetation covers less than 100 percent of the surface, such as in arid areas, the 70 percent coverage criteria is adjusted as follows: if the preconstruction vegetation covers 50 percent of the ground surface, 70 percent of 50 percent (.70 X .50=.35) would require 35 percent total uniform surface coverage; or

b. Where no vegetation is present prior to construction, the site is returned to its original line and grade and/or compacted to achieve stabilization; or

c. Equiva lent stabilization measures have been employed. These measures include, but are not limited to, the use of such BMPs as blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion resistant soil coverings or treatments.

2. LUP Termination of Coverage Requirements

The LRP shall file an NOT through the State Water Board's SMARTS system. By submitting an NOT, the LRP is certifying that construction activities for an LUP are complete and that the project is in full compliance with requirements of this General Permit and that it is now compliant with soil stabilization requirements where appropriate. Upon approval by the appropriate Regional Water Board office, permit coverage will be terminated.

3. Revising Coverage for Change of Acreage

When the LRP of a portion of an LUP construction project changes, or when a phase within a multi-phase project is completed, the LRP may reduce the total acreage covered by this General Permit. In reducing the acreage covered by this General Permit, the LRP shall electronically file revisions to the PRDs that include:

a. a revised NOI indicating the new project size;

b. a revised site map showing the acreage of the project completed, acreage currently under construction, acreage sold, transferred or added, and acreage currently stabilized.

c. SWPPP revisions, as appropriate; and

d. certification that any new LRPs have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address (if known) of the new LRP.

If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

D. DISCHARGE PROHIBITIONS

1. LUP dischargers shall not violate any discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans. Waste discharges to Areas of Special Biological Significance (ASBS) are prohibited by the California Ocean Plan, unless granted an exception issued by the State Water Board.

2. LUP dischargers are prohibited from discharging non-storm water that is not otherwise authorized by this General Permit. Non-storm water discharges authorized by this General Permit[3] may include, fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, street cleaning, dewatering,[4] uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. Such discharges are allowed by this General Permit provided they are not relied upon to clean up failed or inadequate construction or post-construction BMPs designed to keep materials on site. These authorized non-storm water discharges:

[3] Dischargers must identify all authorized non-storm water discharges in the LUP's SWPPP and identify BMPs that will be implemented to either eliminate or reduce pollutants in non-storm water discharges. Regional Water Boards may direct the discharger to discontinue discharging such non-storm water discharges if determined that such discharges discharge significant pollutants or threaten water quality.
[4] Dewatering activities may be prohibited or need coverage under a separate permit issued by the Regional Water Boards. Dischargers shall check with the appropriate Regional Water Boards for any required permit or basin plan conditions prior to initial dewatering activities to land, storm drains, or waterbodies.

a. Shall not cause or contribute to a violation of any water quality standard;

b. Shall not violate any other provision of this General Permit;

c. Shall not violate any applicable Basin Plan;

d. Shall comply with BMPs as described in the SWPPP;

e. Shall not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;

f. Shall be monitored and meets the applicable NALs and NELs; and

g. Shall be reported by the discharger in the Annual Report.

If any of the above conditions are not satisfied, the discharge is not authorized by this General Permit. The discharger shall notify the Regional Water Board of any anticipated non-storm water discharges not authorized by this General Permit to determine the need for a separate NPDES permit.

Additionally, some LUP dischargers may be required to obtain a separate permit if the applicable Regional Water Board has adopted a General Permit for dewatering discharges. Wherever feasible, alternatives, that do not result in the discharge of non-storm water, shall be implemented in accordance with this Attachment's Section K.2 - SWPPP Implementation Schedule.

3. LUP dischargers shall ensure that trench spoils or any other soils disturbed during construction activities that are contaminated[5] are not discharged with storm water or non-storm water discharges into any storm drain or water body except pursuant to an NPDES permit.

When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the LUP discharger shall have those soils sampled and tested to ensure that proper handling and public safety measures are

[5] Contaminated soil contains pollutants in concentrations that exceed the appropriate thresholds that various regulatory agencies set for those substances. Preliminary testing of potentially contaminated soils will be based on odor, soil discoloration, or prior history of the site's chemical use and storage and other similar factors. When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the discharger shall have those soils sampled and tested to ensure proper handling and public safety measures are implemented. The legally responsible person will notify the appropriate local, State, or federal agency(ies) when contaminated soil is found at a construction site, and will notify the Regional Water Board by submitting an NOT at the completion of the project.

implemented. The LUP discharger shall notify the appropriate local, State, and federal agency(ies) when contaminated soil is found at a construction site, and will notify the appropriate Regional Water Board.

4. Discharging any pollutant-laden water that will cause or contribute to an exceedance of the applicable Regional Water Board's Basin Plan from a dewatering site or sediment basin into any receiving water or storm drain is prohibited.

5. Debris[6] resulting from construction activities are prohibited from being discharged from construction project sites.

E. SPECIAL PROVISIONS

1. Duty to Comply

a. The LUP discharger must comply with all of the conditions of this General Permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General Permit coverage.

b. The LUP discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

a. This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

[6] Litter, rubble, discarded refuse, and remains of something destroyed.

b. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the dischargers so notified.

3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an LUP discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

4. Duty to Mitigate

The LUP discharger shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The LUP discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this General Permit and with the requirements of the Storm Water Pollution Prevention Plan (SWPPP). Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a discharger when necessary to achieve compliance with the conditions of this General Permit.

6. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

7. Duty to Maintain Records and Provide Information

a. The LUP discharger shall maintain a paper or electronic copy of all required records, including a copy of this General Permit, for three years from the date generated or date submitted, whichever is last. These records shall be kept at the construction site or in a crew

member's vehicle until construction is completed, and shall be made available upon request.

b. The LUP discharger shall furnish the Regional Water Board, State Water Board, or USEPA, within a reasonable time, any requested information to determine compliance with this General Permit. The LUP discharger shall also furnish, upon request, copies of records that are required to be kept by this General Permit.

8. Inspection and Entry

The LUP discharger shall allow the Regional Water Board, State Water Board, USEPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this General Permit;

b. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

c. Inspect at reasonable times the complete construction site, including any off-site staging areas or material storage areas, and the erosion/sediment controls; and

d. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

9. Electronic Signature and Certification Requirements

a. All Permit Registration Documents (PRDs) and Notices of Termination (NOTs) shall be electronically signed, certified, and submitted via SMARTS to the State Water Board. Either the Legally Responsible Person (LRP) or a person legally authorized to sign and certify PRDs and NOTs on behalf of the LRP (the LRP's Approved Signatory) must submit all information electronically via SMARTS. For Linear Underground/Overhead projects, the Legally Responsible Person is the person in charge of the utility company, municipality, or other public or private company or agency that owns or operates the LUP. The LRP's Approved Signatory must be one of the following:

i For a corporation: a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(2) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

ii For a partnership or sole proprietorship: a general partner or the proprietor, respectively; or

iii For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. The principal executive officer of a Federal agency includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

b. Changes to Authorization. If an approved signatory's authorization is no longer accurate, a new authorization satisfying the requirements of paragraph (a) of this section must be submitted via SMARTS prior to or together with any reports, information or applications to be signed by an approved signatory.

c. All SWPPP revisions, annual reports, or other information required by the General Permit (other than PRDs and NOTs) or requested by the Regional Water Board, State Water Board, USEPA, or local storm water management agency shall be certified and submitted by the LRP or the LRP's approved signatory as described above.

10. Certification

Any person signing documents under Section E.9 above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Anticipated Noncompliance

The LUP discharger shall give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity, which may result in noncompliance with General Permit requirements.

12. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

13. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the LUP discharger is or may be subject to under Section 311 of the CWA.

14. Severability

The provisions of this General Permit are severable; and, if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

15. Reopener Clause

This General Permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of USEPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

16. Penalties for Violations of Permit Conditions

a. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this General Permit is

subject to a civil penalty not to exceed $37,500[7] per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA.

17. Transfers

This General Permit is not transferable. A new LRP of an ongoing construction activity must submit PRDs in accordance with the requirements of this General Permit to be authorized to discharge under this General Permit. An LRP who is a property owner with active General Permit coverage who sells a fraction or all the land shall inform the new property owner(s) of the requirements of this General Permit.

18. Continuation of Expired Permit

This General Permit continues in force and effect until a new General Permit is issued or the SWRCB rescinds this General Permit. Only those dischargers authorized to discharge under the expiring General Permit are covered by the continued General Permit.

F. EFFLUENT STANDARDS

1. Narrative Effluent Limitations

a. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges regulated by this General Permit do not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

b. LUP dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of structural or non-structural controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

[7] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act

2. Numeric Effluent Limitations (NELs)

Table 1. Numeric Effluent Limitations, Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	Numeric Effluent Limitation
pH	Field test with calibrated portable instrument	LUP Type 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	N/A
		LUP Type 3			lower NAL = 6.5 upper NAL = 8.5	lower NEL = 6.0 upper NEL = 9.0
Turbidity EPA	0180.1 and/or field test with calibrated portable instrument	LUP Type 2	1 NTU		250 NTU	N/A
		LUP Type 3			250 NTU	500 NTU

a. Numeric Effluent Limitations (NELs):

i **Storm Event, Daily Average pH Limits –** For LUP Type 3 dischargers, the daily average pH of storm water and non-storm water discharges shall be within the ranges specified in Table 1 during any project phase where there is a "high risk of pH discharge."[8]

ii **Storm Event Daily Average Turbidity Limit –** For LUP Type 3 dischargers, the daily average turbidity of storm water and non-storm water discharges shall not exceed 500 NTU.

[8] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

b. If a daily average sample result is outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file the results in violation within 5 business days of obtaining the results.

c. Compliance Storm Event:

Discharges of storm water from LUP Type 3 sites shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for LUP Type 3 discharges is the 5-year, 24-hour storm (expressed in tenths of an inch of rainfall), as determined by using these maps:

http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif
http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif

Compliance storm event verification shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

d. Dischargers shall not be required to comply with NELs if the site receives run-on from a forest fire or any other natural disaster.

3. Numeric Action Levels (NALs)

a. For LUP Type 2 and 3 dischargers, the lower storm event daily average NAL for pH is 6.5 pH units and the upper storm event daily average NAL for pH is 8.5 pH units. The LUP discharger shall take actions as described below if the storm event daily average discharge is outside of this range of pH values.

b. For LUP Type 2 and 3 dischargers, the storm event daily average NAL for turbidity is 250 NTU. The discharger shall take actions as described below if the storm event daily average discharge is outside of this range of turbidity values.

c. Whenever daily average analytical effluent monitoring results indicate that the discharge is below the lower NAL for pH, exceeds the upper NAL for pH, or exceeds the turbidity NAL (as listed in Table 1), the LUP discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL

exceedance and shall immediately implement corrective actions if they are needed.

d. The site evaluation will be documented in the SWPPP and specifically address whether the source(s) of the pollutants causing the exceedance of the NAL:

i Are related to the construction activities and whether additional BMPs or SWPPP implementation measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) determine what corrective action(s) were taken or will be taken and with a description of the schedule for completion.

AND/OR:

ii Are related to the run-on associated with the construction site location and whether additional BMPs or SWPPP implementation measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) decide what corrective action(s) were taken or will be taken, including a description of the schedule for completion.

G. RECEIVING WATER LIMITATIONS

1. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges to any surface or ground water will not adversely affect human health or the environment.

2. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

3. LUP dischargers shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable Regional Water Board's Water Quality Control Plan (Basin Plan).

H. TRAINING QUALIFICATIONS

1. General

All persons responsible for implementing requirements of this General Permit shall be appropriately trained. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. Persons responsible for preparing, amending and certifying SWPPPs shall comply with the requirements in this Section H.

2. SWPPP Certification Requirements

a. **Qualified SWPPP Developer:** The LUP discharger shall ensure that all SWPPPs be written, amended and certified by a Qualified SWPPP Developer (QSD). A QSD shall have one of the following registrations or certifications, and appropriate experience, as required for:

i A California registered professional civil engineer;

ii A California registered professional geologist or engineering geologist;

iii A California registered landscape architect;

iv A professional hydrologist registered through the American Institute of Hydrology;

v A certified professional in erosion and sediment control (CPESC) ™ registered through Enviro Cert International, Inc;

vi A certified professional in storm water quality (CPSWQ)™ registered through Enviro Cert International, Inc.; or

vii A certified professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET).

Effective two years after the adoption date of this General Permit, a QSD shall have attended a State Water Board-sponsored or approved QSD training course.

b. The LUP discharger shall ensure that the SWPPP is written and amended, as needed, to address the specific circumstances for each construction site covered by this General Permit prior to commencement of construction activity for any stage.

c. The LUP discharger shall list the name and telephone number of the currently designated Qualified SWPPP Developer(s) in the SWPPP.

d. **Qualified SWPPP Practitioner:** The LUP discharger shall ensure that all elements of any SWPPP for each project will be implemented by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-storm water and storm water visual observations, sampling and analysis, and for ensuring full compliance with the permit and implementation of all elements of the SWPPP. Effective two years from the date of adoption of this General Permit, a QSP shall be either a QSD or have one of the following certifications:

   i A certified erosion, sediment and storm water inspector registered through Certified Professional in Erosion and Sediment Control, Inc.; or

   ii A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

   Effective two years after the adoption date of this General Permit, a QSP shall have attended a State Water Board-sponsored or approved QSP training course.

e. The LUP discharger shall ensure that the SWPPP include a list of names of all contractors, subcontractors, and individuals who will be directed by the Qualified SWPPP Practitioner, and who is ultimately responsible for implementation of the SWPPP. This list shall include telephone numbers and work addresses. Specific areas of responsibility of each subcontractor and emergency contact numbers shall also be included.

f. The LUP discharger shall ensure that the SWPPP and each amendment be signed by the Qualified SWPPP Developer. The LUP discharger shall include a listing of the date of initial preparation and the dates of each amendment in the SWPPP.

I. TYPES OF LINEAR PROJECTS

This attachment establishes three types (Type 1, 2 & 3) of complexity for areas within an LUP or project section based on threat to water quality. Project area Types are determined through Attachment A.1.

The Type 1 requirements below establish the baseline requirements for all LUPs subject to this General Permit. Additional requirements for Type 2 and Type 3 LUPs are labeled.

1. Type 1 LUPs*:*

LUP dischargers with areas of a LUP designated as Type 1 shall comply with the requirements in this Attachment. Type 1 LUPs are:

a. Those construction areas where 70 percent or more of the construction activity occurs on a paved surface and where areas disturbed during construction will be returned to preconstruction conditions or equivalent protection established at the end of the construction activities for the day; or

b. Where greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them where:

   i Areas disturbed during construction will be returned to preconstruction conditions or equivalent protection is established at the end of the construction activities for the day to minimize the potential for erosion and sediment deposition, and

   ii Areas where established vegetation was disturbed during construction will be stabilized and re-vegetated by the end of project. When required, adequate temporary stabilization BMPs will be installed and maintained until vegetation is established to meet minimum cover requirements established in this General Permit for final stabilization.

c. Where the risk determination is as follows:

   i Low sediment risk, low receiving water risk, or

   ii Low sediment risk, medium receiving water risk, or

   iii Medium sediment risk, low receiving water risk

2. Type 2 LUPs:

Type 2 LUPs are determined by the Combined Risk Matrix in Attachment A.1. Type 2 LUPs have the specified combination of risk:

d. High sediment risk, low receiving water risk, or

e. Medium sediment risk, medium receiving water risk, or

f. Low sediment risk, high receiving water risk

Receiving water risk is either considered "Low" for those areas of the project that are not in close proximity to a sensitive receiving watershed, "Medium" for those areas of the project within a sensitive receiving watershed yet outside of the flood plain of a sensitive receiving water body, and "High" where the soil disturbance is within close proximity to a sensitive receiving water body. Project sediment risk is calculated based on the Risk Factor Worksheet in Attachment C of this General Permit.

3. Type 3 LUPs:

Type 3 LUPs are determined by the Combined Risk Matrix in Attachment A.1. Type 3 LUPs have the specified combination of risk:

a. High sediment risk, high receiving water risk, or

b. High sediment risk, medium receiving water risk, or

c. Medium sediment risk, high receiving water risk

Receiving water risk is either considered "Medium" for those areas of the project within a sensitive receiving watershed yet outside of the flood plain of a sensitive receiving water body, or "High" where the soil disturbance is within close proximity to a sensitive receiving water body. Project sediment risk is calculated based on the Risk Factor Worksheet in Attachment C.

J. LUP TYPE-SPECIFIC REQUIREMENTS

1. Effluent Standards

a. Narrative – LUP dischargers shall comply with the narrative effluent standards below.

i Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

ii LUP dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

b. Numeric – LUP Type 1 dischargers are not subject to a numeric effluent standard

c. Numeric –LUP Type 2 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

d. Numeric – LUP Type 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU. In addition, LUP Type 3 dischargers are subject to a pH NEL of 6.0-9.0 and a turbidity NEL of 500 NTU.

2. Good Site Management "Housekeeping"

a. LUP dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, the good housekeeping measures shall consist of the following:

i Identify the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

ii Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

iii Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

iv Minimize exposure of construction materials to precipitation (not applicable to materials designed to be outdoors and exposed to the environment).

v Implement BMPs to control the off-site tracking of loose construction and landscape materials.

b. LUP dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:

i Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.

ii Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.

iii Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.

iv Cover waste disposal containers at the end of every business day and during a rain event.

v Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.

vi Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.

vii Implement procedures that effectively address hazardous and non-hazardous spills.

viii Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:

(1) Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and

(2) Appropriate spill response personnel are assigned and trained.

ix Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

c. LUP dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:

   i Prevent oil, grease, or fuel from leaking into the ground, storm drains or surface waters.

   ii Implement appropriate BMPs whenever equipment or vehicles are fueled, maintained or stored.

   iii Clean leaks immediately and disposing of leaked materials properly.

d. LUP dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:

   i Contain stockpiled materials such as mulches and topsoil when they are not actively being used.

   ii Contain fertilizers and other landscape materials when they are not actively being used.

   iii Discontinue the application of any erodible landscape material at least 2 days before a forecasted rain event[9] or during periods of precipitation.

   iv Applying erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.

   v Stacking erodible landscape material on pallets and covering or storing such materials when not being used or applied.

e. LUP dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, LUP dischargers shall do the following:

[9] 50% or greater chance of producing precipitation.

i Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.

ii Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.

iii Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

iv Ensure retention of sampling, visual observation, and inspection records.

v Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

f. LUP dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations.

3. Non-Storm Water Management

a. LUP dischargers shall implement measures to control all non-storm water discharges during construction.

b. LUP dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

c. LUP dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

4. Erosion Control

a. LUP dischargers shall implement effective wind erosion control.

b. LUP dischargers shall provide effective soil cover for inactive[10] areas and all finished slopes, and utility backfill.

[10] Areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days

c. LUP dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

5. Sediment Controls

a. LUP dischargers shall establish and maintain effective perimeter controls as needed, and implement effective BMPs for all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.

b. On sites where sediment basins are to be used, LUP dischargers shall, at minimum, design sediment basins according to the guidance provided in CASQA's Construction BMP Handbook.

c. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths[11] in accordance with Table 2 below.

Table 2 – Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not to exceed
0-25% 20	feet
25-50% 15	feet
Over 50%	10 feet

d. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent off-site tracking of sediment.

e. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.

f. **Additional LUP Type 2 & 3 Requirement:** LUP Type 2 & 3 dischargers shall inspect all immediate access roads. At a minimum daily and prior to any rain event, the discharger shall remove any

[11] Sheet flow length is the length that shallow, low velocity flow travels across a site.

sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).

g. **Additional LUP Type 3 Requirement:** The Regional Water Board may require LUP Type 3 dischargers to implement additional site-specific sediment control requirements if the implementation of the other requirements in this section are not adequately protecting the receiving waters.

6. Run-on and Run-off Controls

a. LUP dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site-shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this Attachment.

b. Run-on and runoff controls are not required for Type 1 LUPs unless the evaluation of quantity and quality of run-on and runoff deems them necessary or visual inspections show that the site requires such controls.

7. Inspection, Maintenance and Repair

a. All inspection, maintenance repair and sampling activities at the discharger's LUP location shall be performed or supervised by a QSP representing the discharger. The QSP may delegate any or all of these activities to an employee trained to do the task(s) appropriately, but shall ensure adequate deployment.

b. LUP dischargers shall conduct visual inspections and observations daily during working hours (not recorded). At least once each 24-hour period during extended storm events, **LUP Type 2 & 3 dischargers** shall conduct visual inspections to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

c. Upon identifying failures or other shortcomings, as directed by the QSP, LUP dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.

d. For each pre- and post-rain event inspection required, LUP dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format that includes the information described below.

e. The LUP discharger shall ensure that the checklist remains on-site or with the SWPPP. At a minimum, an inspection checklist should include:

i Inspection date and date the inspection report was written.

ii Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.

iii Site information, including stage of construction, activities completed, and approximate area of the site exposed.

iv A description of any BMPs evaluated and any deficiencies noted.

v If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.

vi Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.

vii Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.

viii Photographs taken during the inspection, if any.

ix Inspector's name, title, and signature.

K. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS

1. Objectives

SWPPPs for all LUPs shall be developed and amended or revised by a QSD. The SWPPP shall be designed to address the following objectives:

a. All pollutants and their sources, including sources of sediment, associated with construction activities associated with LUP activity are controlled;

b. All non-storm water discharges are identified and either eliminated, controlled, or treated;

c. BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from LUPs during construction; and

d. Stabilization BMPs installed to reduce or eliminate pollutants after construction is completed are effective and maintained.

2. SWPPP Implementation Schedule

a. LUPs for which PRDs have been submitted to the State Water Board shall develop a site/project location SWPPP prior to the start of land-disturbing activity in accordance with this Section and shall implement the SWPPP concurrently with commencement of soil-disturbing activities.

b. For an ongoing LUP involving a change in the LRP, the new LRP shall review the existing SWPPP and amend it, if necessary, or develop a new SWPPP within 15 calendar days to conform to the requirements set forth in this General Permit.

3. Availability

The SWPPP shall be available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone.

L. REGIONAL WATER BOARD AUTHORITIES

1. Regional Water Boards shall administer the provisions of this General Permit. Administration of this General Permit may include, but is not limited to, requesting the submittal of SWPPPs, reviewing SWPPPs, reviewing monitoring and sampling and analysis reports, conducting compliance inspections, gathering site information by any medium including sampling, photo and video documentation, and taking enforcement actions.

2. Regional Water Boards may terminate coverage under this General Permit for dischargers who fail to comply with its requirements or where they determine that an individual NPDES permit is appropriate.

3. Regional Water Boards may issue separate permits for discharges of storm water associated with construction activity to individual dischargers, categories of dischargers, or dischargers in a geographic area. Upon issuance of such permits by a Regional Water Board, dischargers subject to those permits shall no longer be regulated by this General Permit.

4. Regional Water Boards may direct the discharger to reevaluate the LUP Type(s) for the project (or elements/areas of the project) and impose the appropriate level of requirements.

5. Regional Water Boards may terminate coverage under this General Permit for dischargers who negligently or with willful intent incorrectly determine or report their LUP Type (e.g., they determine themselves to be a LUP Type 1 when they are actually a Type 2).

6. Regional Water Boards may review PRDs and reject or accept applications for permit coverage or may require dischargers to submit a Report of Waste Discharge / NPDES permit application for Regional Water Board consideration of individual requirements.

7. Regional Water Boards may impose additional requirements on dischargers to satisfy TMDL implementation requirements or to satisfy provisions in their Basin Plans.

8. Regional Water Boards may require additional Monitoring and Reporting Program Requirements, including sampling and analysis of discharges to sediment-impaired water bodies.

9. Regional Water Boards may require dischargers to retain records for more than the three years required by this General Permit.

10. Based on an LUP's threat to water quality and complexity, the Regional Water Board may determine on a case-by-case basis that an LUP, or a portion of an LUP, is not eligible for the linear project requirements contained in this Attachment, and require that the discharger comply with all standard requirements in this General Permit.

11. The Regional Water Board may require additional monitoring and reporting program requirements including sampling and analysis of discharges to CWA § 303(d)-listed water bodies. Additional requirements imposed by the Regional Water Board shall be consistent with the overall monitoring effort in the receiving waters.

M. MONITORING AND REPORTING REQUIREMENTS

Table 3. LUP Summary of Monitoring Requirements

LUP Type	Visual Inspections				Sample Collection		
	Daily Site BMP	Pre-storm Event / Baseline	Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water	Non-Visible (when applicable)
1	X						X
2	X	X	X	X	X		X
3	X	X	X	X	X	X	X

1. Objectives

LUP dischargers shall prepare a monitoring and reporting program (M&RP) prior to the start of construction and immediately implement the program at the start of construction for LUPs. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The M&RP must be a part of the SWPPP, included as an appendix or separate SWPPP chapter.

2. M&RP Implementation Schedule

a. LUP dischargers shall implement the requirements of this Section at the time of commencement of construction activity. LUP dischargers are responsible for implementing these requirements until construction activity is complete and the site is stabilized.

b. LUP dischargers shall revise the M&RP when:

i Site conditions or construction activities change such that a change in monitoring is required to comply with the requirements and intent of this General Permit.

ii The Regional Water Board requires the discharger to revise its M&RP based on its review of the document. Revisions may include, but not be limited to, conducting additional site inspections, submitting reports, and certifications. Revisions shall be submitted via postal mail or electronic e-mail.

iii The Regional Water Board may require additional monitoring and reporting program requirements including sampling and analysis of discharges to CWA § 303(d)-listed water bodies. Additional requirements imposed by the Regional Water Board shall be consistent with the overall monitoring effort in the receiving waters.

3. LUP Type 1 Monitoring and Reporting Requirements

a. LUP Type 1 Inspection Requirements

i LUP Type 1 dischargers shall ensure that all inspections are conducted by trained personnel. The name(s) and contact number(s) of the assigned inspection personnel should be listed in the SWPPP.

ii LUP Type 1 dischargers shall ensure that all visual inspections are conducted daily during working hours and in conjunction with other daily activities in areas where active construction is occurring.

iii LUP Type 1 dischargers shall ensure that photographs of the site taken before, during, and after storm events are taken during inspections, and submitted through the State Water Board's SMARTS website once every three rain events.

iv LUP Type 1 dischargers shall conduct daily visual inspections to verify that:

(1) Appropriate BMPs for storm water and non-storm water are being implemented in areas where active construction is occurring (including staging areas);

(2) Project excavations are closed, with properly protected spoils, and that road surfaces are cleaned of excavated material and construction materials such as chemicals by either removing or storing the material in protective storage containers at the end of every construction day;

(3) Land areas disturbed during construction are returned to pre-construction conditions or an equivalent protection is used at the end of each workday to eliminate or minimize erosion and the possible discharge of sediment or other pollutants during a rain event.

v Inspections may be discontinued in non-active construction areas where soil-disturbing activities are completed and final soil stabilization is achieved (e.g., paving is completed, substructures

are installed, vegetation meets minimum cover requirements for final stabilization, or other stabilization requirements are met).

vi Inspection programs are required for LUP Type 1 projects where temporary and permanent stabilization BMPs are installed and are to be monitored after active construction is completed. Inspection activities shall continue until adequate permanent stabilization is established and, in areas where re-vegetation is chosen, until minimum vegetative coverage is established in accordance with Section C.1 of this Attachment.

b. LUP Type 1 Monitoring Requirements for Non-Visible Pollutants

LUP Type 1 dischargers shall implement sampling and analysis requirements to monitor non-visible pollutants associated with (1) construction sites; (2) activities producing pollutants that are not visually detectable in storm water discharges; and (3) activities which could cause or contribute to an exceedance of water quality objectives in the receiving waters.

i Sampling and analysis for non-visible pollutants is only required where the LUP Type 1 discharger believes pollutants associated with construction activities have the potential to be discharged with storm water runoff due to a spill or in the event there was a breach, malfunction, failure and/or leak of any BMP. Also, failure to implement BMPs may require sample collection.

(1) Visual observations made during the monitoring program described above will help the LUP Type 1 discharger determine when to collect samples.

(2) The LUP Type 1 discharger is not required to sample if one of the conditions described above (e.g., breach or spill) occurs and the site is cleaned of material and pollutants and/or BMPs are implemented prior to the next storm event.

ii LUP Type 1 dischargers shall collect samples down-gradient from all discharge locations where the visual observations were made triggering the monitoring, and which can be safely accessed. For sites where sampling and analysis is required, personnel trained in water quality sampling procedures shall collect storm water samples.

iii If sampling for non-visible pollutant parameters is required, LUP Type 1 dischargers shall ensure that samples be analyzed for parameters indicating the presence of pollutants identified in the pollutant source assessment required in Section J.2.a.i.

iv LUP Type 1 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.

v LUP Type 1 dischargers shall ensure that a sufficiently large sample of storm water that has not come into contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample[12]) will be collected for comparison with the discharge sample. Samples shall be collected during the first two hours of discharge from rain events that occur during daylight hours and which generate runoff.

vi LUP Type 1 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis. Analyses may include, but are not limited to, indicator parameters such as: pH, specific conductance, dissolved oxygen, conductivity, salinity, and Total Dissolved Solids (TDS).

vii For laboratory analyses, all sampling, sample preservation, and other analyses must be conducted according to test procedures pursuant to 40 C.F.R. Part 136. LUP Type 1 dischargers shall ensure that field samples are collected and analyzed according to manufacturer specifications of the sampling devices employed. Portable meters shall be calibrated according to manufacturer's specification.

viii LUP Type 1 dischargers shall ensure that all field and/or analytical data are kept in the SWPPP document.

c. LUP Type 1 Visual Observation Exceptions

i LUP Type 1 dischargers shall be prepared to collect samples and conduct visual observation (inspections) to meet the minimum visual observation requirements of this Attachment. The Type 1 LUP discharger is not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

(1) During dangerous weather conditions such as flooding and electrical storms;

(2) Outside of scheduled site business hours.

(3) When access to the site is unsafe due to storm events.

[12] Sample collected at a location unaffected by contruction activities.

ii If the LUP Type 1 discharger does not collect the required samples or visual observation (inspections) due to these exceptions, an explanation why the sampling or visual observation (inspections) were not conducted shall be included in both the SWPPP and the Annual Report.

d. Particle Size Analysis for Risk Justification

LUP Type 1 dischargers utilizing justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

4. LUP Type 2 & 3 Monitoring and Reporting Requirements

a. LUP Type 2 & 3 Inspection Requirements

i LUP Type 2 & 3 dischargers shall ensure that all inspections are conducted by trained personnel. The name(s) and contact number(s) of the assigned inspection personnel should be listed in the SWPPP.

ii LUP Type 2 & 3 dischargers shall ensure that all visual inspections are conducted daily during working hours and in conjunction with other daily activities in areas where active construction is occurring.

iii LUP Type 2 & 3 dischargers shall ensure that photographs of the site taken before, during, and after storm events are taken during inspections, and submitted through the State Water Board's SMARTS website once every three rain events.

iv LUP Type 2 & 3 dischargers shall conduct daily visual inspections to verify that appropriate BMPs for storm water and non-storm water are being implemented and in place in areas where active construction is occurring (including staging areas).

v LUP Type 2 & 3 dischargers shall conduct inspections of the construction site prior to anticipated storm events, during extended storm events, and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity. Pre-storm inspections are to ensure that BMPs are properly installed and maintained; post-storm inspections are to assure that BMPs have functioned adequately. During

extended storm events, inspections shall be required during normal working hours for each 24-hour period.

vi Inspections may be discontinued in non-active construction areas where soil-disturbing activities are completed and final soil stabilization is achieved (e.g., paving is completed, substructures are installed, vegetation meets minimum cover requirements for final stabilization, or other stabilization requirements are met).

vii LUP Type 2 & 3 dischargers shall implement a monitoring program for inspecting projects that require temporary and permanent stabilization BMPs after active construction is complete. Inspections shall ensure that the BMPs are adequate and maintained. Inspection activities shall continue until adequate permanent stabilization is established and, in vegetated areas, until minimum vegetative coverage is established in accordance with Section C.1 of this Attachment.

viii If possible, LUP Type 2 & 3 dischargers shall install a rain gauge on-site at an accessible and secure location with readings made during all storm event inspections. When readings are unavailable, data from the closest rain gauge with publically available data may be used.

ix LUP Type 2 & 3 dischargers shall Include and maintain a log of the inspections conducted in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection.

b. LUP Type 2 & 3 Storm Water Effluent Monitoring Requirements

Table 4. LUP Type 2 & 3 Effluent Monitoring Requirements

LUP Type	Frequency	Effluent Monitoring
2	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	Turbidity, pH, and non-visible pollutant parameters (if applicable)
3	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	turbidity, pH, suspended sediment concentrations (SSC)[13] (only if turbidity NEL exceeded), plus non-visible pollutant parameters (if applicable)

i LUP Type 2 & 3 dischargers shall collect storm water grab samples from sampling locations characterizing discharges associated with

[13] Suspended Sediment Concentration monitoring is required for any Type 3 area that exceeds its turbidity NEL.

activity from the LUP active areas of construction. At a minimum, 3 samples shall be collected per day of discharge.

ii LUP Type 2 & 3 dischargers shall collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.

iii LUP Type 2 & 3 dischargers shall ensure that storm water grab sample(s) obtained be representative of the flow and characteristics of the discharge.

iv LUP Type 2 & 3 dischargers shall analyze their effluent samples for:

(1) pH and turbidity
(2) Any additional parameter for which monitoring is required by the Regional Water Board.

v LUP Type 3 dischargers that have violated the turbidity daily average NEL shall analyze subsequent effluent samples for turbidity and SSC.

c. LUP Type 2 & 3 Storm Water Effluent Sampling Locations

i LUP Type 2 & 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire disturbed project or area.

ii LUP Type 2 & 3 dischargers may monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to exceedance of NALs or NELs (applicable to Type 3).

iii LUP Type 2 & 3 dischargers shall select analytical test methods from the list provided in Table 5 below.

iv LUP Type 2 & 3 dischargers shall ensure that all storm water sample collection preservation and handling shall be conducted in accordance with the “Storm Water Sample Collection and Handling Instructions” below.

d. LUP Type 3 Receiving Water Monitoring Requirements

i In the event that an LUP Type 3 discharger violates an applicable NEL contained in this General Permit and has a direct discharge to receiving waters, the LUP discharger shall subsequently sample Receiving Waters (RWs) for turbidity, pH (if applicable) and SSC.

ii LUP Type 3 dischargers that meet the project criteria in Appendix 3 of this General Permit and have more than 30 acres of soil disturbance in the project area or project section area designated as Type 3, shall comply with the Bioassessment requirements prior to commencement of construction activity.

iii LUP Type 3 dischargers shall obtain RW samples in accordance with the requirements of the Receiving Water Sampling Locations section (Section M.4.d of this Attachment).

e. LUP Type 3 Receiving Water Sampling Locations

i **Upstream/up-gradient RW samples**: LUP Type 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible to and upstream from the effluent discharge point.

ii **Downstream/down-gradient RW samples**: LUP Type 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible to and downstream from the effluent discharge point.

iii If two or more discharge locations discharge to the same receiving water, LUP Type 3 dischargers may sample the receiving water at a single upstream and downstream location.

f. LUP Type 2 & 3 Monitoring Requirements for Non-Visible Pollutants

LUP Type 2 & 3 dischargers shall implement sampling and analysis requirements to monitor non-visible pollutants associated with (1) construction sites; (2) activities producing pollutants that are not visually detectable in storm water discharges; and (3) activities which could cause or contribute to an exceedance of water quality objectives in the receiving waters.

i Sampling and analysis for non-visible pollutants is only required where LUP Type 2 & 3 dischargers believe pollutants associated with construction activities have the potential to be discharged with storm water runoff due to a spill or in the event there was a breach, malfunction, failure and/or leak of any BMP. Also, failure to implement BMPs may require sample collection.

(1) Visual observations made during the monitoring program described above will help LUP Type 2 & 3 dischargers determine when to collect samples.

(2) LUP Type 2 & 3 dischargers are not required to sample if one of the conditions described above (e.g., breach or spill) occurs and the site is cleaned of material and pollutants and/or BMPs are implemented prior to the next storm event.

ii LUP Type 2 & 3 dischargers shall collect samples down-gradient from the discharge locations where the visual observations were made triggering the monitoring and which can be safely accessed. For sites where sampling and analysis is required, personnel trained in water quality sampling procedures shall collect storm water samples.

iii If sampling for non-visible pollutant parameters is required, LUP Type 2 & 3 dischargers shall ensure that samples be analyzed for parameters indicating the presence of pollutants identified in the pollutant source assessment required in Section J.2.a.i.

iv LUP Type 2 & 3 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.

v LUP Type 2 & 3 dischargers shall ensure that a sufficiently large sample of storm water that has not come into contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample[14]) will be collected for comparison with the discharge sample. Samples shall be collected during the first two hours of discharge from rain events that occur during daylight hours and which generate runoff.

vi LUP Type 2 & 3 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis. Analyses may include, but are not limited to, indicator parameters such as: pH, specific conductance, dissolved oxygen, conductivity, salinity, and Total Dissolved Solids (TDS).

vii For laboratory analyses, all sampling, sample preservation, and other analyses must be conducted according to test procedures pursuant to 40 C.F.R. Part 136. LUP Type 2 & 3 dischargers shall ensure that field samples are collected and analyzed according to manufacturer specifications of the sampling devices employed. Portable meters shall be calibrated according to manufacturer's specification.

viii LUP Type 2 & 3 dischargers shall ensure that all field and/or analytical data are kept in the SWPPP document.

[14] Sample collected at a location unaffected by construction activities

g. LUP Type 2 & 3 Visual Observation and Sample Collection Exceptions

i LUP Type 2 & 3 dischargers shall be prepared to collect samples and conduct visual observation (inspections) to meet the minimum visual observation requirements of this Attachment. Type 2 & 3 LUP dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

(1) During dangerous weather conditions such as flooding and electrical storms;

(2) Outside of scheduled site business hours.

(3) When access to the site is unsafe due to storm events.

ii If the LUP Type 2 or 3 discharger does not collect the required samples or visual observation (inspections) due to these exceptions, an explanation why the sampling or visual observation (inspections) were not conducted shall be included in both the SWPPP and the Annual Report.

h. LUP Type 2 & 3 Storm Water Sample Collection and Handling Instructions

LUP Type 2 & 3 dischargers shall refer to Table 5 below for test Methods, detection Limits, and reporting Units. During storm water sample collection and handling, the LUP Type 2 & 3 discharger shall:

i Identify the parameters required for testing and the number of storm water discharge points that will be sampled. Request the laboratory to provide the appropriate number of sample containers, types of containers, sample container labels, blank chain of custody forms, and sample preservation instructions.

ii Determine how to ship the samples to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The options are to either deliver the samples to the laboratory, arrange to have the laboratory pick them up, or ship them overnight to the laboratory.

iii Use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers could contaminate your samples.

iv Prevent sample contamination, by not touching, or putting anything into the sample containers before collecting storm water samples.

v Not overfilling sample containers. Overfilling can change the analytical results.

vi Tightly screw the cap of each sample container without stripping the threads of the cap.

vii Complete and attach a label to each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.

viii Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into the shipping container. Samples should be kept as close to 4° C (39° F) as possible until arriving at the laboratory. Do not freeze samples.

ix Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the discharger's name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.

x Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.

xi Designate and train personnel to collect, maintain, and ship samples in accordance with the above sample protocols and good laboratory practices.

xii Refer to the Surface Water Ambient Monitoring Program's (SWAMP) Quality Assurance Management Plan (QAMP) for more information on sampling collection and analysis. See http://www.waterboards.ca.gov/water_issues/programs/swamp/[15] QAMP Link: http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml

[15] Additional information regarding QAMP can be found at http://mpsl.mlml.calstate.edu/swqacompare.htm.

Table 5. Test Methods, Detection Limits, Reporting Units and Applicable NALs/NELs

Parameter	Test Method	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Levels	Numeric Effluent Limitation (LUP Type 3)
pH	Field test with calibrated portable instrument	Type 2 & 3	0.2	pH units	Lower = 6.5 upper = 8.5	Lower = 6.0 upper = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Type 2 & 3	1	NTU	250 NTU	500 NTU
SSC	ASTM Method D 3977-97[16]	Type 3 if NEL is exceeded	5 Mg/L		N/A	N/A
Bioassessment	(STE) Level I of (SAFIT),[17] fixed-count of 600 org/sample	Type 3 LUPs > 30 acres	N/A N/A		N/A	N/A

i. LUP Type 2 & 3 Monitoring Methods

i The LUP Type 2 or 3 discharger's project M&RP shall include a description of the following items:

(1) Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

(2) Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program a copy of the Chain of Custody form used when handling and shipping samples.

[16] ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394

[17] The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

(3) Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section M.4.f above.

ii LUP Type 2 & 3 dischargers shall ensure that all sampling and sample preservation be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses shall be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services (SSC exception). The LUP discharger shall conduct its own field analysis of pH and may conduct its own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

j. LUP Type 2 & 3 Analytical Methods

LUP Type 2 & 3 dischargers shall refer to Table 5 above for test Methods, detection Limits, and reporting Units.

i **pH**: LUP Type 2 & 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or pH test kit. The LUP discharger shall record pH monitoring results on paper and retain these records in accordance with Section M.4.o, below.

ii **Turbidity**: LUP Type 2 & 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results shall be recorded in the site log book in Nephelometric Turbidity Units (NTU).

iii **Suspended sediment concentration (SSC)**: LUP Type 3 dischargers exceeding their NEL, shall perform SSC analysis using ASTM Method D3977-97.

iv **Bioassessment**: LUP Type 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

k. Watershed Monitoring Option

If an LUP Type 2 or 3 discharger is part of a qualified regional watershed-based monitoring program the LUP Type 2 or 3 discharger may be eligible for relief from the monitoring requirements in this Attachment. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program if it determines that the watershed-based monitoring program will provide information to determine each discharger's compliance with the requirements of this General Permit.

l. Particle Size Analysis for Risk Justification

LUP Type 2 & 3 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

m. NAL Exceedance Report

i In the event that any effluent sample exceeds an applicable NAL, the Regional Water Boards may require LUP Type 2 & 3 dischargers to submit NAL Exceedance Reports.

ii LUP Type 2 & 3 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity.

iii LUP Type 2 & 3 dischargers shall retain an electronic or paper copy of each NAL Exceedance Report for a minimum of three years after the date the exceedance report is filed.

iv LUP Type 2 & 3 dischargers shall include in the NAL Exceedance Report:

(1) the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit"); and
(2) the date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.

(3) Description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

n. NEL Violation Report

i All LUP Type 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 5 days after the conclusion of the storm event.

ii In the event that a LUP Type 3 discharger has violated an applicable NEL, the discharger shall submit an NEL Violation Report to the State Water Board no later than 24 hours after the NEL exceedance has been identified.

iii The LUP Type 3 discharger shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity.

iv The LUP Type 3 discharger shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the violation report is filed.

v The LUP Type 3 discharger shall include in the NEL Violation Report:

(1) the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit"); and
(2) the date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.
(3) Description of the current on-site BMPs, and the proposed corrective actions taken to manage the NEL exceedance.

vi Compliance Storm Exemption:
In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event (see Section F.2.c of this Attachment), the LUP Type 3 discharger shall report the on-site rain gauge and nearby governmental rain gauge readings for verification.

o. Monitoring Records

LUP Type 2 & 3 dischargers shall ensure that records of all storm water monitoring information and copies of all reports (including Annual Reports) required by this General Permit be retained for a period of at least three years. LUP Type 2 & 3 dischargers may retain records off-

site and make them available upon request. These records shall include:

i The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge);

ii The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements;

iii The date and approximate time of analyses;

iv The individual(s) who performed the analyses;

v A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and all chain of custody forms;

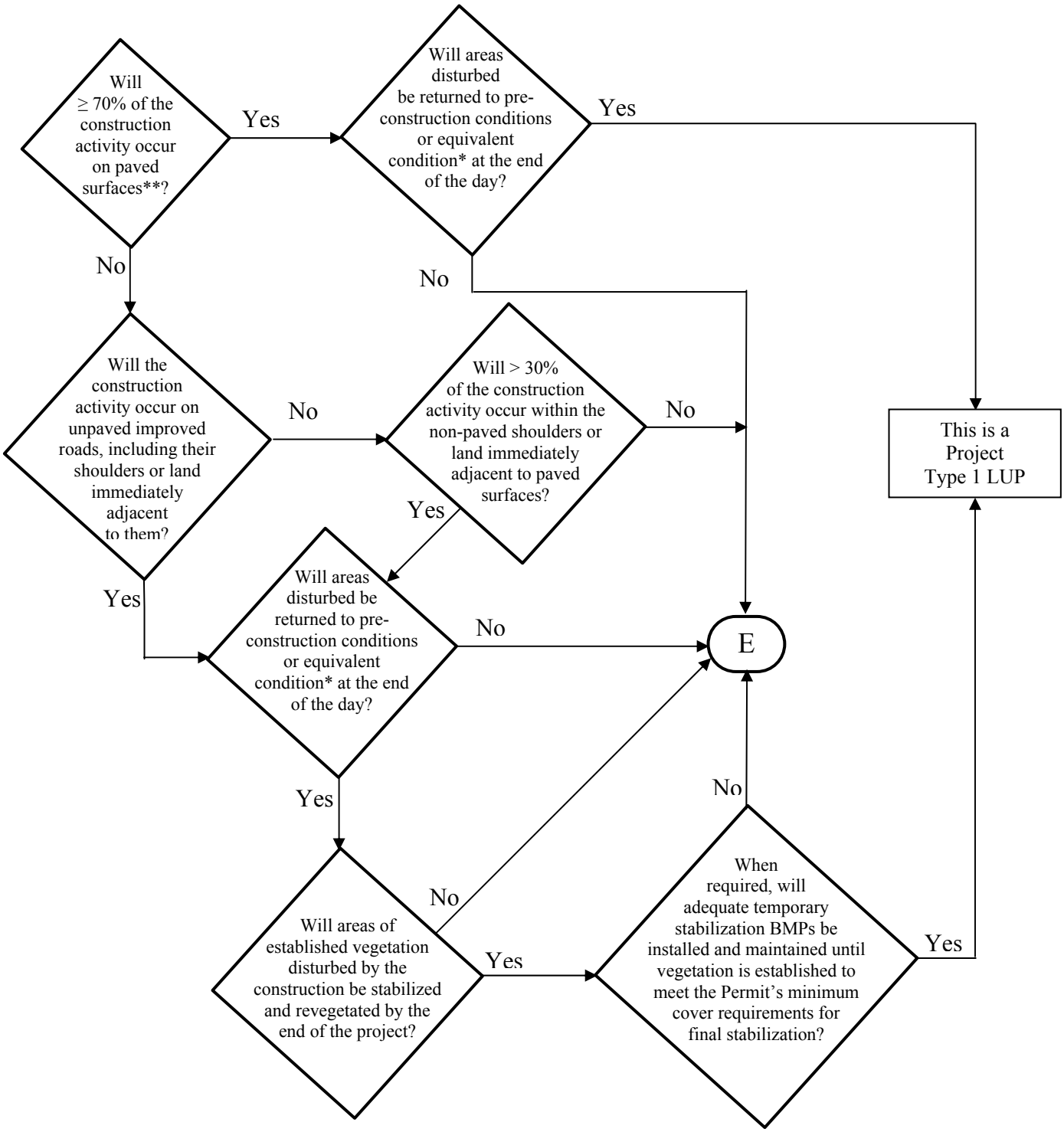
vi Quality assurance/quality control records and results;

vii Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Section M.4.a above);

viii Visual observation and sample collection exception records (see Section M.4.g above); and

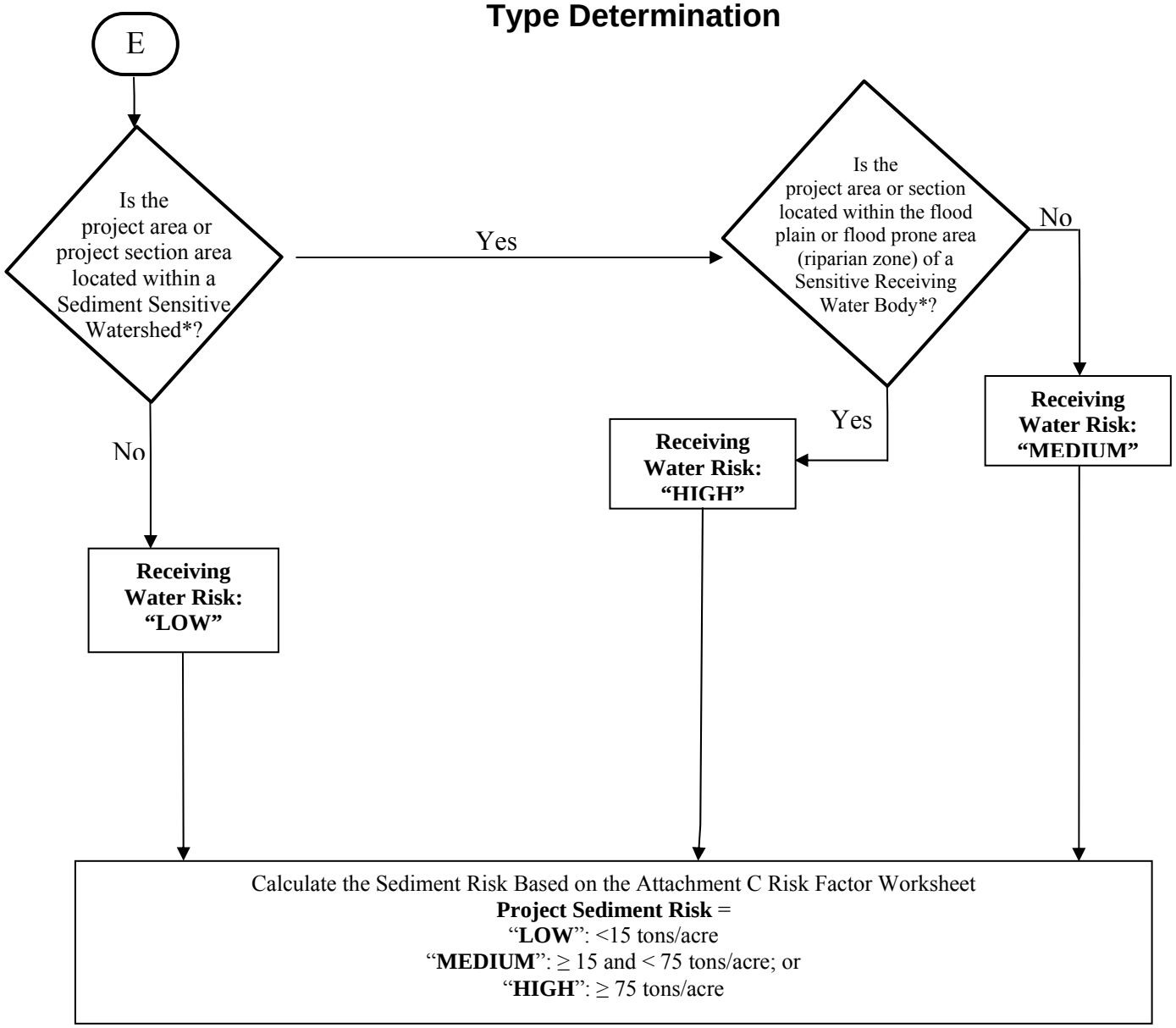
ix The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

ATTACHMENT A.1
LUP Project Area or Project Section Area Type Determination



*See Definition of Terms
** Or: "Will < 30% of the soil disturbance occur on unpaved surfaces?

ATTACHMENT A.1
LUP Project Area or Project Section Area Type Determination



* See Definition of Terms

PROJECT SEDIMENT RISK

RECEIVING WATER RISK	LOW	MEDIUM	HIGH
LOW	Type 1	Type 1	Type 2
MEDIUM	Type 1	Type 2	Type 3
HIGH	Type 2	Type 3	Type 3

ATTACHMENT A.1
Definition of Terms

1. **Equivalent Condition** – Means disturbed soils such as those from trench excavation are required to be hauled away, backfilled into the trench, and/or covered (e.g., metal plates, pavement, plastic covers over spoil piles) at the end of the construction day.
2. **Linear Construction Activity** – Linear construction activity consists of underground/ overhead facilities that typically include, but are not limited to, any conveyance, pipe or pipeline for the transportation of any gaseous, liquid (including water, wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/ tower pad and cable/ wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/ borrow locations.
3. **Sediment Sensitive Receiving Water Body –** Defined as a water body segment that is listed on EPA's approved CWA 303(d) list for sedimentation/siltation, turbidity, or is designated with beneficial uses of SPAWN, MIGRATORY, and COLD.
4. **Sediment Sensitive Watershed –** Defined as a watershed draining into a receiving water body listed on EPA's approved CWA 303(d) list for sedimentation/siltation, turbidity, or a water body designated with beneficial uses of SPAWN, MIGRATORY, and COLD.

ATTACHMENT A.2
PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS FOR LINEAR UNDERGROUND/OVERHEAD PROJECTS TO COMPLY WITH THE CONSTRUCTION GENERAL PERMIT

GENERAL INSTRUCTIONS

Who Must Submit

This permit is effective on July 1, 2010.

The Legally Responsible Person (LRP) for construction activities associated with linear underground/overhead project (LUP) must electronically apply for coverage under this General Permit on or after July 1, 2010. If it is determined that the LUP construction activities require an NPDES permit, the Legally Responsible Person[1] (LRP) shall submit PRDs for this General Permit in accordance with the following:

LUPs associated with Private or Municipal Development Projects

1. For LUPs associated with pre-development and pre-redevelopment construction activities:

   The LRP must obtain coverage[2] under this General Permit for its pre-development and pre-redevelopment construction activities where the total disturbed land area of these construction activities is greater than 1 acre.

2. For LUPs associated with new development and redevelopment construction projects:

   The LRP must obtain coverage under this General Permit for LUP construction activities associated with new development and redevelopment projects where the total disturbed land area of the LUP is greater than 1 acre. Coverage under this permit is not required where the same LUP construction activities are covered by another NPDES permit.

LUPs not associated with private or municipal new development or redevelopment projects:

The LRP must obtain coverage under this General Permit on or after July 1, 2010 for its LUP construction activities where the total disturbed land area is greater than 1 acre.

PRD Submittal Requirements

Prior to the start of construction activities a LRP must submit PRDs and fees to the State Water Board for each LUP.

New and Ongoing LUPs

Dischargers of new LUPs that commence construction activities after the adoption date of this General Permit shall file PRDs prior to the commencement of construction and implement the SWPPP upon the start of construction.

[1] person possessing the title of the land on which the construction activities will occur for the regulated site

[2] obtain coverage means filing PRDs for the project.

PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)

Dischargers of ongoing LUPs that are currently covered under State Water Board Order No. 2003-0007 (Small LUP General Permit) shall electronically file Permit Registration Documents no later than July 1, 2010. After July 1, 2010, all NOIs subject to State Water Board Order No. 2003-0007-DWQ will be terminated. All existing dischargers shall be exempt from the risk determination requirements in Attachment A. All existing dischargers are therefore subject to LUP Type 1 requirements regardless of their project's sediment and receiving water risks. However, a Regional Board retains the authority to require an existing discharger to comply with the risk determination requirements in Attachment A.

Where to Apply

The Permit Registration Documents (PRDs) can be found at www.waterboards.ca.gov/water_issues/programs/stormwater/

Fees

The annual fee for storm water permits are established through the State of California Code of Regulations.

When Permit Coverage Commences

To obtain coverage under the General Permit, the LRP must include the complete PRDs and the annual fee. All PRDs deemed incomplete will be rejected with an explanation as to what is required to complete submittal. Upon receipt of complete PRDs and associated fee, each discharger will be sent a waste discharger's identification (WDID) number.

Projects and Activities Not Defined As Construction Activity

1. LUP construction activity does not include routine maintenance projects to maintain original line and grade, hydraulic capacity, or original purpose of the facility. Routine maintenance projects are projects associated with operations and maintenance activities that are conducted on existing lines and facilities and within existing right-of-way, easements, franchise agreements or other legally binding agreements of the discharger. Routine maintenance projects include, but are not limited to projects that are conducted to:

- Maintain the original purpose of the facility, or hydraulic capacity.
- Update existing lines[3] and facilities to comply with applicable codes, standards and regulations regardless if such projects result in increased capacity.
- Repairing leaks.

Routine maintenance does not include construction of new[4] lines or facilities resulting from compliance with applicable codes, standards and regulations.

[3] Update existing lines includes replacing existing lines with new materials or pipes.
[4] New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)

Routine maintenance projects do not include those areas of maintenance projects that are outside of an existing right-of-way, franchise, easements, or agreements. When a project must acquire new areas, those areas may be subject to this General Permit based on the area of disturbed land outside the original right-of-way, easement or agreement.

2. LUP construction activity does not include field activities associated with the planning and design of a project (e.g., activities associated with route selection).

3. Tie-ins conducted immediately adjacent to "energized" or "pressurized" facilities by the discharger are not considered small construction activities where all other LUP construction activities associated with the tie-in are covered by a NOI and SWPPP of a third party or municipal agency.

Calculating Land Disturbance Areas of LUPs

The total land area disturbed for LUPs is the sum of the:

- Surface areas of trenches, laterals and ancillary facilities, plus
- Area of the base of stockpiles on unpaved surfaces, plus
- Surface area of the borrow area, plus
- Areas of paved surfaces constructed for the project, plus
- Areas of new roads constructed or areas of major reconstruction to existing roads (e.g. improvements to two-track surfaces or road widening) for the sole purpose of accessing construction activities or as part of the final project, plus
- Equipment and material storage, staging, and preparation areas (laydown areas) not on paved surfaces, plus
- Soil areas outside the surface area of trenches, laterals and ancillary facilities that will be graded, and/or disturbed by the use of construction equipment, vehicles and machinery during construction activities.

Stockpiling Areas

Stockpiling areas, borrow areas and the removal of soils from a construction site may or may not be included when calculating the area of disturbed soil for a site depending on the following conditions:

- For stockpiling of soils onsite or immediately adjacent to a LUP site and the stockpile is not on a paved surface, the area of the base of the stockpile is to be included in the disturbed area calculation.

- The surface area of borrow areas that are onsite or immediately adjacent to a project site are to be included in the disturbed area calculation.

- For soil that is hauled offsite to a location owned or operated by the discharger that is not a paved surface, the area of the base of the stockpile is to be included in the disturbed area calculation except when the offsite location is already subject to a separate storm water permit.

PERMIT REGISTRATION DOCUMENTS (PRDs)
GENERAL INSTRUCTIONS (CONTINUED)

- For soil that is brought to the project from an off-site location owned or operated by the discharger the surface area of the borrow pit is to be included in the disturbed area calculation except when the offsite location is already subject to a separate storm water permit.

- Trench spoils on a paved surface that are either returned to the trench or excavation or hauled away from the project daily for disposal or reuse will not be included in the disturbed area calculation.

If you have any questions concerning submittal of PRDs, please call the State Water Board at (866) 563-3107.

ATTACHMENT B
PERMIT REGISTRATION DOCUMENTS (PRDs) TO COMPLY WITH THE TERMS OF THE GENERAL PERMIT TO DISCHARGE STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY

GENERAL INSTRUCTIONS

A. All Linear Construction Projects shall comply with the PRD requirements in Attachment A.2 of this Order.

B. Who Must Submit

Discharges of storm water associated with construction that results in the disturbance of one acre or more of land must apply for coverage under the General Construction Storm Water Permit (General Permit). Any construction activity that is a part of a larger common plan of development or sale must also be permitted, regardless of size. (For example, if 0.5 acre of a 20-acre subdivision is disturbed by the construction activities of discharger A and the remaining 19.5 acres is to be developed by discharger B, discharger A must obtain a General Storm Water Permit for the 0.5 acre project).

Other discharges from construction activities that are covered under this General Permit can be found in the General Permit Section II.B.

It is the LRP's responsibility to obtain coverage under this General Permit by electronically submitting complete PRDs (Permit Registration Documents).

In all cases, the proper procedures for submitting the PRDs must be completed before construction can commence.

C. Construction Activity Not Covered By This General Permit

Discharges from construction that are not covered under this General Permit can be found in the General Permit Sections II.A &B..

D. Annual Fees and Fee Calculation

Annual fees are calculated based upon the total area of land to be disturbed not the total size of the acreage owned. However, the calculation includes all acres to be disturbed during the duration of the project. For example, if 10 acres are scheduled to be disturbed the first year and 10 in each subsequent year for 5 years, the annual fees would be based upon 50 acres of disturbance. The State Water Board will evaluate adding acreage to an existing Permit Waste Discharge Identification (WDID) number on a case-by-case basis. In general, any acreage to be considered must be contiguous to the permitted land area and the existing

SWPPP must be appropriate for the construction activity and topography of the acreage under consideration. As acreage is built out and stabilized or sold, the Change of Information (COI) form enables the applicant to remove those acres from inclusion in the annual fee calculation. Checks should be made payable to: State Water Board.

The Annual fees are established through regulations adopted by the State Water Board. The total annual fee is the current base fee plus applicable surcharges for all construction sites submitting an NOI, based on the total acreage to be disturbed during the life of the project. Annual fees are subject to change by regulation.

Dischargers that apply for and satisfy the Small Construction Erosivity Wavier requirements shall pay a fee of $200.00 plus an applicable surcharge, see the General Permit Section II.B.7.

E. When to Apply

LRP's proposing to conduct construction activities subject to this General Permit must submit their PRDs prior to the commencement of construction activity.

F. Requirements for Completing Permit Registration Documents (PRDs)

All dischargers required to comply with this General Permit shall electronically submit the required PRDs for their type of construction as defined below.

G. Standard PRD Requirements (All Dischargers)

1. Notice of Intent
2. Risk Assessment (Standard or Site-Specific)
3. Site Map
4. SWPPP
5. Annual Fee
6. Certification

H. Additional PRD Requirements Related to Construction Type

1. Discharger in unincorporated areas of the State (not covered under an adopted Phase I or II SUSMP requirements) and that are not a linear project shall also submit a completed:
   a. Post-Construction Water Balance Calculator (Appendix 2).

2. Dischargers who are proposing to implement ATS shall submit:
   a. Complete ATS Plan in accordance with Attachment F at least 14 days prior to the planned operation of the ATS and a paper copy shall be available onsite during ATS operation.

b. Certification proof that design done by a professional in accordance with Attachment F.

3. Dischargers who are proposing an alternate Risk Justification:
   a. Particle Size Analysis.

I. Exceptions to Standard PRD Requirements

Construction sites with an R value less than 5 as determined in the Risk Assessment are not required to submit a SWPPP.

J. Description of PRDs

1. Notice of Intent (NOI)

2. Site Map(s) Includes:
   a. The project's surrounding area (vicinity)
   b. Site layout
   c. Construction site boundaries
   d. Drainage areas
   e. Discharge locations
   f. Sampling locations
   g. Areas of soil disturbance (temporary or permanent)
   h. Active areas of soil disturbance (cut or fill)
   i. Locations of all runoff BMPs
   j. Locations of all erosion control BMPs
   k. Locations of all sediment control BMPs
   l. ATS location (if applicable)
   m. Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
   n. Locations of all post-construction BMPs
   o. Locations of storage areas for waste, vehicles, service, loading/unloading of materials, access (entrance/exits) points to construction site, fueling, and water storage, water transfer for dust control and compaction practices

3. **SWPPPs**
   A site-specific SWPPP shall be developed by each discharger and shall be submitted with the PRDs.

4. **Risk Assessment**
   All dischargers shall use the Risk Assessment procedure as describe in the General Permit Appendix 1.

   a. The Standard Risk Assessment includes utilization of the following:
      i. Receiving water Risk Assessment interactive map

ii. EPA Rainfall Erosivity Factor Calculator Website
iii. Sediment Risk interactive map
iv. Sediment sensitive water bodies list

b. The Site-Specific Risk Assessment includes the completion of the hand calculated R value Risk Calculator

5. **Post-Construction Water Balance Calculator**
All dischargers subject to this requirement shall complete the Water Balance Calculator (in Appendix 2) in accordance with the instructions.

6. **ATS Design Document and Certification**
All dischargers using ATS must submit electronically their system design (as well as any supporting documentation) and proof that the system was designed by a qualified ATS design professional (See Attachment F).

To obtain coverage under the General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

Questions?

If you have any questions on completing the PRDs please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT C
RISK LEVEL 1 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 1 dischargers shall comply with the narrative effluent standards listed below:

   a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

   b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

2. Numeric – Risk Level 1 dischargers are not subject to a numeric effluent standard.

B. Good Site Management "Housekeeping"

1. Risk Level 1 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 1 dischargers shall implement the following good housekeeping measures:

   a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

   b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.

2. Risk Level 1 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:

a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.

b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.

c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.

d. Cover waste disposal containers at the end of every business day and during a rain event.

e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.

f. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.

g. Implement procedures that effectively address hazardous and non-hazardous spills.

h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:

i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and

ii. Appropriate spill response personnel are assigned and trained.

i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

3. Risk Level 1 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:

   a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.

   b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.

   c. Clean leaks immediately and disposing of leaked materials properly.

4. Risk Level 1 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:

   a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.

   b. Contain fertilizers and other landscape materials when they are not actively being used.

   c. Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.

   d. Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.

   e. Stack erodible landscape material on pallets and covering or storing such materials when not being used or applied.

5. Risk Level 1 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 1 dischargers shall do the following:

a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.

b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.

c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

d. Ensure retention of sampling, visual observation, and inspection records.

e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

6. Risk Level 1 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.

C. Non-Storm Water Management

1. Risk Level 1 dischargers shall implement measures to control all non-storm water discharges during construction.

2. Risk Level 1 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

3. Risk Level 1 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 1 dischargers shall implement effective wind erosion control.

2. Risk Level 1 dischargers shall provide effective soil cover for inactive[1] areas and all finished slopes, open space, utility backfill, and completed lots.

3. Risk Level 1 dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 1 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.

2. On sites where sediment basins are to be used, Risk Level 1 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.

F. Run-on and Runoff Controls

Risk Level 1 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 1 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee trained to do the task(s) appropriately, but shall ensure adequate deployment.

2. Risk Level 1 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended

[1] Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.

storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 1 dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.

4. For each inspection required, Risk Level 1 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.

5. Risk Level 1 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:

   a. Inspection date and date the inspection report was written.

   b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.

   c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.

   d. A description of any BMPs evaluated and any deficiencies noted.

   e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.

   f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.

   g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.

   h. Photographs taken during the inspection, if any.

   i. Inspector's name, title, and signature.

H. Rain Event Action Plan

Not required for Risk Level 1 dischargers.

I. Risk Level 1 Monitoring and Reporting Requirements

Table 1- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
1	X	X		X	X		

1. **Construction Site Monitoring Program Requirements**

   a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.

   b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Programs to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Programs in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.

   c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. **Objectives**

   The CSMP shall be developed and implemented to address the following objectives:

   a. To demonstrate that the site is in compliance with the Discharge Prohibitions;

b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;

c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges; and

d. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.

3. **Risk Level 1 - Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**

a. Risk Level 1 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.

b. Risk Level 1 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.

c. Risk Level 1 dischargers shall conduct visual observations (inspections) during business hours only.

d. Risk Level 1 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.

e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 1 dischargers shall visually observe (inspect):

i. All storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.

ii. All BMPs to identify whether they have been properly implemented in accordance with the SWPPP. If needed, the discharger shall implement appropriate corrective actions.

iii. Any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

f. For the visual observations (inspections) described in e.i and e.iii above, Risk Level 1 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

g. Within two business days (48 hours) after each qualifying rain event, Risk Level 1 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.

h. Risk Level 1 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

4. **Risk Level 1 – Visual Observation Exemptions**

a. Risk Level 1 dischargers shall be prepared to conduct visual observation (inspections) until the minimum requirements of Section I.3 above are completed. Risk Level 1 dischargers are not required to conduct visual observation (inspections) under the following conditions:

i. During dangerous weather conditions such as flooding and electrical storms.

ii. Outside of scheduled site business hours.

b. If no required visual observations (inspections) are collected due to these exceptions, Risk Level 1 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the visual observations (inspections) were not conducted.

5. **Risk Level 1 – Monitoring Methods**

Risk Level 1 dischargers shall include a description of the visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures in the CSMP.

6. **Risk Level 1 – Non-Storm Water Discharge Monitoring Requirements**

a. Visual Monitoring Requirements:

   i. Risk Level 1 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.

   ii. Risk Level 1 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).

   iii. Risk Level 1 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 1 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges.

7. **Risk Level 1 – Non-Visible Pollutant Monitoring Requirements**

   a. Risk Level 1 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.

   b. Risk Level 1 dischargers shall ensure that water samples are large enough to characterize the site conditions.

   c. Risk Level 1 dischargers shall collect samples at all discharge locations that can be safely accessed.

   d. Risk Level 1 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.

   e. Risk Level 1 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the

presence of pollutants identified in the pollutant source assessment required (Risk Level 1 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).

f. Risk Level 1 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.

g. Risk Level 1 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.[2]

h. Risk Level 1 dischargers shall keep all field /or analytical data in the SWPPP document.

8. **Risk Level 1 – Particle Size Analysis for Project Risk Justification**

Risk Level 1 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

9. **Risk Level 1 – Records**

Risk Level 1 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 1 dischargers shall retain all records on-site while construction is ongoing. These records include:

a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.

b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.

c. The date and approximate time of analyses.

d. The individual(s) who performed the analyses.

[2] For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

e. A summary of all analytical results from the last three years, the method detection limits and reporting units, and the analytical techniques or methods used.

f. Rain gauge readings from site inspections.

g. Quality assurance/quality control records and results.

h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.6 above).

i. Visual observation and sample collection exception records (see Section I.4 above).

j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

ATTACHMENT D
RISK LEVEL 2 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 2 dischargers shall comply with the narrative effluent standards listed below:

   a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

   b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

2. Numeric – Risk level 2 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

B. Good Site Management "Housekeeping"

1. Risk Level 2 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 2 dischargers shall implement the following good housekeeping measures:

   a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

   b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.

2. Risk Level 2 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:

a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.

b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.

c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.

d. Cover waste disposal containers at the end of every business day and during a rain event.

e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.

f. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.

g. Implement procedures that effectively address hazardous and non-hazardous spills.

h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require:

i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly.

ii. Appropriate spill response personnel are assigned and trained.

i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

3. Risk Level 2 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:

   a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.

   b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.

   c. Clean leaks immediately and disposing of leaked materials properly.

4. Risk Level 2 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:

   a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.

   b. Contain all fertilizers and other landscape materials when they are not actively being used.

   c. Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.

   d. Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.

   e. Stack erodible landscape material on pallets and covering or storing such materials when not being used or applied.

5. Risk Level 2 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 2 dischargers shall do the following:

a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.

b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.

c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

d. Ensure retention of sampling, visual observation, and inspection records.

e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

6. Risk Level 2 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.

7. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall document all housekeeping BMPs in the SWPPP and REAP(s) in accordance with the nature and phase of the construction project. Construction phases at traditional land development projects include Grading and Land Development Phase, Streets and Utilities, or Vertical Construction for traditional land development projects.

C. Non-Storm Water Management

1. Risk Level 2 dischargers shall implement measures to control all non-storm water discharges during construction.

2. Risk Level 2 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

3. Risk Level 2 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 2 dischargers shall implement effective wind erosion control.

2. Risk Level 2 dischargers shall provide effective soil cover for inactive[1] areas and all finished slopes, open space, utility backfill, and completed lots.

3. Risk Level 2 dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 2 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.

2. On sites where sediment basins are to be used, Risk Level 2 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.

3. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall implement appropriate erosion control BMPs (runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active[2] construction.

4. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths[3] in accordance with Table 1.

Table 1 - Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not

[1] Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.
[2] Active areas of construction are areas undergoing land surface disturbance. This includes construction activity during the preliminary stage, mass grading stage, streets and utilities stage and the vertical construction stage.
[3] Sheet flow length is the length that shallow, low velocity flow travels across a site.

	to exceed
0-25% 20	feet
25-50% 15	feet
Over 50%	10 feet

5. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent offsite tracking of sediment.

6. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.

7. **Additional Risk Level 2 Requirement:** Risk Level 2 dischargers shall inspect on a daily basis all immediate access roads daily. At a minimum daily (when necessary) and prior to any rain event, the discharger shall remove any sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).

F. Run-on and Run-off Controls

Risk Level 2 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 2 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee appropriately trained to do the task(s).

2. Risk Level 2 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 2 dischargers shall begin implementing repairs or

design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.

4. For each inspection required, Risk Level 2 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.

5. Risk Level 2 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:

   a. Inspection date and date the inspection report was written.

   b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.

   c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.

   d. A description of any BMPs evaluated and any deficiencies noted.

   e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.

   f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.

   g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.

   h. Photographs taken during the inspection, if any.

   i. Inspector's name, title, and signature.

H. Rain Event Action Plan

1. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop a Rain Event Action Plan (REAP) 48 hours prior to any likely precipitation event. A likely precipitation event is any weather pattern that is forecast to have a 50% or greater probability of producing precipitation in the project area. The discharger shall

ensure a QSP obtain a printed copy of precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at http://www.srh.noaa.gov/forecast).

2. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop the REAPs for all phases of construction (i.e., Grading and Land Development, Streets and Utilities, Vertical Construction, Final Landscaping and Site Stabilization).

3. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP ensure that the REAP include, at a minimum, the following site information:

   a. Site Address
   b. Calculated Risk Level (2 or 3)
   c. Site Storm Water Manager Information including the name, company, and 24-hour emergency telephone number
   d. Erosion and Sediment Control Provider information including the name, company, and 24-hour emergency telephone number
   e. Storm Water Sampling Agent information including the name, company, and 24-hour emergency telephone number

4. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP include in the REAP, at a minimum, the following project phase information:

   a. Activities associated with each construction phase
   b. Trades active on the construction site during each construction phase
   c. Trade contractor information
   d. Suggested actions for each project phase

5. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP develop additional REAPs for project sites where construction activities are indefinitely halted or postponed (Inactive Construction). At a minimum, Inactive Construction REAPs must include:

   a. Site Address
   b. Calculated Risk Level (2 or 3)
   c. Site Storm Water Manager Information including the name, company, and 24-hour emergency telephone number
   d. Erosion and Sediment Control Provider information including the name, company, and 24-hour emergency telephone number
   e. Storm Water Sampling Agent information including the name, company, and 24-hour emergency telephone number

f. Trades active on site during Inactive Construction
g. Trade contractor information
h. Suggested actions for inactive construction sites

6. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP begin implementation and make the REAP available onsite no later than 24 hours prior to the likely precipitation event.

7. **Additional Risk Level 2 Requirement:** The discharger shall ensure a QSP maintain onsite a paper copy of each REAP onsite in compliance with the record retention requirements of the Special Provisions in this General Permit.

I. Risk Level 2 Monitoring and Reporting Requirements

Table 2- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
2	X	X	X	X	X	X	

1. Construction Site Monitoring Program Requirements

   a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.

   b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Program to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Programs in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.

   c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. **Objectives**

   The CSMP shall be developed and implemented to address the following objectives:

a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs)/Numeric Effluent Limitations (NELs) of this General Permit.

b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.

c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges.

d. To determine whether BMPs included in the SWPPP/Rain Event Action Plan (REAP) are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.

3. **Risk Level 2 – Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**

a. Risk Level 2 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.

b. Risk Level 2 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.

c. Risk Level 2 dischargers shall conduct visual observations (inspections) during business hours only.

d. Risk Level 2 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.

e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 2 dischargers shall visually observe (inspect):

i. all storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.

ii. all BMPs to identify whether they have been properly implemented in accordance with the SWPPP/REAP. If needed, the discharger shall implement appropriate corrective actions.

iii. any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

f. For the visual observations (inspections) described in c.i and c.iii above, Risk Level 2 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

g. Within two business days (48 hours) after each qualifying rain event, Risk Level 2 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.

h. Risk Level 2 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

4. **Risk Level 2 – Water Quality Sampling and Analysis**

a. Risk Level 2 dischargers shall collect storm water grab samples from sampling locations, as defined in Section I.5. The storm water grab sample(s) obtained shall be representative of the flow and characteristics of the discharge.

b. At minimum, Risk Level 2 dischargers shall collect 3 samples per day of the qualifying event.

c. Risk Level 2 dischargers shall ensure that the grab samples collected of stored or contained storm water are from discharges subsequent to a qualifying rain event (producing precipitation of ½ inch or more at the time of discharge).

<u>Storm Water Effluent Monitoring Requirements</u>

d. Risk Level 2 dischargers shall analyze their effluent samples for:

i. pH and turbidity.

ii. Any additional parameters for which monitoring is required by the Regional Water Board.

5. **Risk Level 2 – Storm Water Discharge Water Quality Sampling Locations**

Effluent Sampling Locations

a. Risk Level 2 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire project disturbed area.

b. Risk Level 2 dischargers shall collect effluent samples at all discharge points where storm water is discharged off-site.

c. Risk Level 2 dischargers shall ensure that storm water discharge collected and observed represent[4] the effluent in each drainage area based on visual observation of the water and upstream conditions.

d. Risk Level 2 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs or NELs.

e. Risk Level 2 dischargers who deploy an ATS on their site, or a portion on their site, shall collect ATS effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.

f. Risk Level 2 dischargers shall select analytical test methods from the list provided in Table 3 below.

g. All storm water sample collection preservation and handling shall be conducted in accordance with Section I.7 “Storm Water Sample Collection and Handling Instructions” below.

6. **Risk Level 2 – Visual Observation and Sample Collection Exemptions**

a. Risk Level 2 dischargers shall be prepared to collect samples and conduct visual observation (inspections) until the minimum requirements of Sections I.3 and I.4 above are completed. Risk

[4] For example, if there has been concrete work recently in an area, or drywall scrap is exposed to the rain, a pH sample shall be taken of drainage from the relevant work area. Similarly, if sediment laden water is flowing through some parts of a silt fence, samples shall be taken of the sediment-laden water even if most water flowing through the fence is clear.

Level 2 dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

i. During dangerous weather conditions such as flooding and electrical storms.

ii. Outside of scheduled site business hours.

b. If no required samples or visual observation (inspections) are collected due to these exceptions, Risk Level 2 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the sampling or visual observation (inspections) were not conducted.

7. **Risk Level 2 – Storm Water Sample Collection and Handling Instructions**

a. Risk Level 2 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. Risk Level 2 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.

c. Risk Level 2 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).[5]

8. **Risk Level 2 – Monitoring Methods**

a. Risk Level 2 dischargers shall include a description of the following items in the CSMP:

i. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

ii. Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample

[5] Additional information regarding SWAMP's QAPrP and QAMP can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.
QAPrP:http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf.
QAMP: http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml.

collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program an example Chain of Custody form used when handling and shipping samples.

iii. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section I.4 above.

b. Risk Level 2 dischargers shall ensure that all sampling and sample preservation are in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) should be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. Risk Level 2 dischargers shall ensure that all laboratory analyses are conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses should be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services. Risk Level 2 dischargers shall conduct their own field analysis of pH and may conduct their own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

9. **Risk Level 2 – Analytical Methods**

a. Risk Level 2 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. **pH**: Risk Level 2 dischargers shall perform pH analysis on-site with a calibrated pH meter or a pH test kit. Risk Level 2 dischargers shall record pH monitoring results on paper and retain these records in accordance with Section I.14, below.

c. **Turbidity**: Risk Level 2 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results will be recorded in the site log book in Nephelometric Turbidity Units (NTU).

10. **Risk Level 2 - Non-Storm Water Discharge Monitoring Requirements**

    a. Visual Monitoring Requirements:

        i. Risk Level 2 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.

        ii. Risk Level 2 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).

        iii. Risk Level 2 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 2 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges.

    b. Effluent Sampling Locations:

        i. Risk Level 2 dischargers shall sample effluent at all discharge points where non-storm water and/or authorized non-storm water is discharged off-site.

        ii. Risk Level 2 dischargers shall send all non-storm water sample analyses to a laboratory certified for such analyses by the State Department of Health Services.

        iii. Risk Level 2 dischargers shall monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs.

11. **Risk Level 2 – Non-Visible Pollutant Monitoring Requirements**

a. Risk Level 2 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.

b. Risk Level 2 dischargers shall ensure that water samples are large enough to characterize the site conditions.

c. Risk Level 2 dischargers shall collect samples at all discharge locations that can be safely accessed.

d. Risk Level 2 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.

e. Risk Level 2 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the presence of pollutants identified in the pollutant source assessment required (Risk Level 2 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).

f. Risk Level 2 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.

g. Risk Level 2 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.[6]

h. Risk Level 2 dischargers shall keep all field /or analytical data in the SWPPP document.

12. **Risk Level 2 – Watershed Monitoring Option**

Risk Level 2 dischargers who are part of a qualified regional watershed-based monitoring program may be eligible for relief from the requirements in Sections I.5. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program by determining if the watershed-based monitoring program

[6] For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

will provide substantially similar monitoring information in evaluating discharger compliance with the requirements of this General Permit.

13. **Risk Level 2 – Particle Size Analysis for Project Risk Justification**

    Risk Level 2 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

14. **Risk Level 2 – Records**

    Risk Level 2 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 2 dischargers shall retain all records on-site while construction is ongoing. These records include:

    a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.

    b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.

    c. The date and approximate time of analyses.

    d. The individual(s) who performed the analyses.

    e. A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and the chain of custody forms.

    f. Rain gauge readings from site inspections;

    g. Quality assurance/quality control records and results.

    h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.10 above).

    i. Visual observation and sample collection exception records (see Section I.6 above).

j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

15. **Risk Level 2 – NAL Exceedance Report**

a. In the event that any effluent sample exceeds an applicable NAL, Risk Level 2 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report.

b. Risk Level 2 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity.

c. Risk Level 2 dischargers shall retain an electronic or paper copy of each NAL Exceedance Report for a minimum of three years after the date the annual report is filed.

d. Risk Level 2 dischargers shall include in the NAL Exceedance Report:

i. The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as “less than the method detection limit”).

ii. The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.

iii. A description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

Table 3 – Risk Level 2 Test Methods, Detection Limits, Reporting Units and Applicable NALs/NELs

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level
pH	Field test with calibrated portable instrument	Risk Level 2 Discharges	0.2 pH	units	lower NAL = 6.5 upper NAL = 8.5
Turbidity EPA	0180.1 and/or field test with calibrated portable instrument	Risk Level 2 Discharges other than ATS	1 NTU		250 NTU
		For ATS discharges	1 NTU		N/A

ATTACHMENT E
RISK LEVEL 3 REQUIREMENTS

A. Effluent Standards

[These requirements are the same as those in the General Permit order.]

1. Narrative – Risk Level 3 dischargers shall comply with the narrative effluent standards listed below:

   a. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

   b. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

2. Numeric –Risk Level 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU. In addition, Risk Level 3 dischargers are subject to a pH NEL of 6.0-9.0 and a turbidity NEL of 500 NTU.

B. Good Site Management "Housekeeping"

1. Risk Level 3 dischargers shall implement good site management (i.e., "housekeeping") measures for construction materials that could potentially be a threat to water quality if discharged. At a minimum, Risk Level 3 dischargers shall implement the following good housekeeping measures:

   a. Conduct an inventory of the products used and/or expected to be used and the end products that are produced and/or expected to be produced. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

   b. Cover and berm loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.).

c. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

d. Minimize exposure of construction materials to precipitation. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).

e. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.

2. Risk Level 3 dischargers shall implement good housekeeping measures for waste management, which, at a minimum, shall consist of the following:

a. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.

b. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water.

c. Clean or replace sanitation facilities and inspecting them regularly for leaks and spills.

d. Cover waste disposal containers at the end of every business day and during a rain event.

e. Prevent discharges from waste disposal containers to the storm water drainage system or receiving water.

f. Contain and securely protecting stockpiled waste material from wind and rain at all times unless actively being used.

g. Implement procedures that effectively address hazardous and non-hazardous spills.

h. Develop a spill response and implementation element of the SWPPP prior to commencement of construction activities. The SWPPP shall require that:

i. Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and

ii. Appropriate spill response personnel are assigned and trained.

i. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

3. Risk Level 3 dischargers shall implement good housekeeping for vehicle storage and maintenance, which, at a minimum, shall consist of the following:

   a. Prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.

   b. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.

   c. Clean leaks immediately and disposing of leaked materials properly.

4. Risk Level 3 dischargers shall implement good housekeeping for landscape materials, which, at a minimum, shall consist of the following:

   a. Contain stockpiled materials such as mulches and topsoil when they are not actively being used.

   b. Contain fertilizers and other landscape materials when they are not actively being used.

   c. Discontinuing the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.

   d. Applying erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.

   e. Stacking erodible landscape material on pallets and covering or storing such materials when not being used or applied.

5. Risk Level 3 dischargers shall conduct an assessment and create a list of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. This potential pollutant list shall be kept with the SWPPP and shall identify

all non-visible pollutants which are known, or should be known, to occur on the construction site. At a minimum, when developing BMPs, Risk Level 3 dischargers shall do the following:

a. Consider the quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.

b. Consider the degree to which pollutants associated with those materials may be exposed to and mobilized by contact with storm water.

c. Consider the direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

d. Ensure retention of sampling, visual observation, and inspection records.

e. Ensure effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

6. Risk Level 3 dischargers shall implement good housekeeping measures on the construction site to control the air deposition of site materials and from site operations. Such particulates can include, but are not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics.

7. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall document all housekeeping BMPs in the SWPPP and REAP(s) in accordance with the nature and phase of the construction project. Construction phases at traditional land development projects include Grading and Land Development Phase, Streets and Utilities, or Vertical Construction for traditional land development projects.

C. Non-Storm Water Management

1. Risk Level 3 dischargers shall implement measures to control all non-storm water discharges during construction.

2. Risk Level 3 dischargers shall wash vehicles in such a manner as to prevent non-storm water discharges to surface waters or MS4 drainage systems.

3. Risk Level 3 dischargers shall clean streets in such a manner as to prevent unauthorized non-storm water discharges from reaching surface water or MS4 drainage systems.

D. Erosion Control

1. Risk Level 3 dischargers shall implement effective wind erosion control.

2. Risk Level 3 dischargers shall provide effective soil cover for inactive[1] areas and all finished slopes, open space, utility backfill, and completed lots.

3. Dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation.

E. Sediment Controls

1. Risk Level 3 dischargers shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.

2. On sites where sediment basins are to be used, Risk Level 3 dischargers shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.

3. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall implement appropriate erosion control BMPs (runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active[2] construction.

4. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths[3] in accordance with Table 1.

[1] Inactive areas of construction are areas of construction activity that have been disturbed and are not scheduled to be re-disturbed for at least 14 days.
[2] Active areas of construction are areas undergoing land surface disturbance. This includes construction activity during the preliminary stage, mass grading stage, streets and utilities stage and the vertical construction stage
[3] Sheet flow length is the length that shallow, low velocity flow travels across a site.

Table 1 - Critical Slope/Sheet Flow Length Combinations

Slope Percentage	Sheet flow length not to exceed
0-25% 20	feet
25-50% 15	feet
Over 50%	10 feet

5. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall ensure that construction activity traffic to and from the project is limited to entrances and exits that employ effective controls to prevent offsite tracking of sediment.

6. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall ensure that all storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits (e.g. tire washoff locations) are maintained and protected from activities that reduce their effectiveness.

7. **Additional Risk Level 3 Requirement:** Risk Level 3 dischargers shall inspect on a daily basis all immediate access roads daily. At a minimum daily (when necessary) and prior to any rain event, the discharger shall remove any sediment or other construction activity-related materials that are deposited on the roads (by vacuuming or sweeping).

8. **Additional Risk Level 3 Requirement:** The Regional Water Board may require Risk Level 3 dischargers to implement additional site-specific sediment control requirements if the implementation of the other requirements in this section are not adequately protecting the receiving waters.

F. Run-on and Run-off Controls

Risk Level 3 dischargers shall effectively manage all run-on, all runoff within the site and all runoff that discharges off the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in this General Permit.

G. Inspection, Maintenance and Repair

1. Risk Level 3 dischargers shall ensure that all inspection, maintenance repair and sampling activities at the project location shall be performed or supervised by a Qualified SWPPP Practitioner (QSP) representing the discharger. The QSP may delegate any or all of these activities to an employee appropriately trained to do the task(s).

2. Risk Level 3 dischargers shall perform weekly inspections and observations, and at least once each 24-hour period during extended storm events, to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Inspectors shall be the QSP or be trained by the QSP.

3. Upon identifying failures or other shortcomings, as directed by the QSP, Risk Level 3 dischargers shall begin implementing repairs or design changes to BMPs within 72 hours of identification and complete the changes as soon as possible.

4. For each inspection required, Risk Level 3 dischargers shall complete an inspection checklist, using a form provided by the State Water Board or Regional Water Board or in an alternative format.

5. Risk Level 3 dischargers shall ensure that checklists shall remain onsite with the SWPPP and at a minimum, shall include:

    a. Inspection date and date the inspection report was written.

    b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.

    c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.

    d. A description of any BMPs evaluated and any deficiencies noted.

    e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-storm water controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.

    f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.

    g. Any corrective actions required, including any necessary changes to the SWPPP and the associated implementation dates.

    h. Photographs taken during the inspection, if any.

i. Inspector's name, title, and signature.

H. Rain Event Action Plan

1. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP develop a Rain Event Action Plan (REAP) 48 hours prior to any likely precipitation event. A likely precipitation event is any weather pattern that is forecast to have a 50% or greater probability of producing precipitation in the project area. The QSP shall obtain a printed copy of precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at http://www.srh.noaa.gov/forecast).

2. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP develop the REAPs for all phases of construction (i.e., Grading and Land Development, Streets and Utilities, Vertical Construction, Final Landscaping and Site Stabilization).

3. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP ensure that the REAP include, at a minimum, the following site information:

   a. Site Address.
   b. Calculated Risk Level (2 or 3).
   c. Site Storm Water Manager Information including the name, company, and 24-hour emergency telephone number.
   d. Erosion and Sediment Control Provider information including the name, company, and 24-hour emergency telephone number.
   e. Storm Water Sampling Agent information including the name, company, and 24-hour emergency telephone number.

4. **Additional Risk Level 3 Requirement:** The QSP shall include in the REAP, at a minimum, the following project phase information:

   a. Activities associated with each construction phase.
   b. Trades active on the construction site during each construction phase.
   c. Trade contractor information.
   d. Suggested actions for each project phase.

5. **Additional Risk Level 3 Requirement:** The QSP shall develop additional REAPs for project sites where construction activities are indefinitely halted or postponed (Inactive Construction). At a minimum, Inactive Construction REAPs must include:

a. Site Address.
b. Calculated Risk Level (2 or 3).
c. Site Storm Water Manager Information including the name, company, and 24-hour emergency telephone number.
d. Erosion and Sediment Control Provider information including the name, company, and 24-hour emergency telephone number.
e. Storm Water Sampling Agent information including the name, company, and 24-hour emergency telephone number.
f. Trades active on site during Inactive Construction.
g. Trade contractor information.
h. Suggested actions for inactive construction sites.

6. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP begin implementation and make the REAP available onsite no later than 24 hours prior to the likely precipitation event.

7. **Additional Risk Level 3 Requirement:** The discharger shall ensure a QSP maintain onsite a paper copy of each REAP onsite in compliance with the record retention requirements of the Special Provisions in this General Permit.

I. Risk Level 3 Monitoring and Reporting Requirements

Table 2- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
3	X	X	X	X	X	X	X[4]

1. Construction Site Monitoring Program Requirements

   a. Pursuant to Water Code Sections 13383 and 13267, all dischargers subject to this General Permit shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of this Section. The CSMP shall include all monitoring procedures and instructions, location maps, forms, and checklists as required in this section. The CSMP shall be developed prior to the commencement of construction activities, and revised as necessary to reflect project revisions. The CSMP shall be a part of the Storm Water Pollution Prevention Plan (SWPPP), included as an appendix or separate SWPPP chapter.

   b. Existing dischargers registered under the State Water Board Order No. 99-08-DWQ shall make and implement necessary revisions to their Monitoring Program to reflect the changes in this General Permit in a timely manner, but no later than July 1, 2010. Existing dischargers shall continue to implement their existing Monitoring Program in compliance with State Water Board Order No. 99-08-DWQ until the necessary revisions are completed according to the schedule above.

   c. When a change of ownership occurs for all or any portion of the construction site prior to completion or final stabilization, the new discharger shall comply with these requirements as of the date the ownership change occurs.

2. **Objectives**

   The CSMP shall be developed and implemented to address the following objectives:

[4] When NEL exceeded

a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs)/Numeric Effluent Limitations (NELs) of this General Permit.

b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.

c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges.

d. To determine whether BMPs included in the SWPPP/Rain Event Action Plan (REAP) are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.

3. **Risk Level 3 – Visual Monitoring (Inspection) Requirements for Qualifying Rain Events**

a. Risk Level 3 dischargers shall visually observe (inspect) storm water discharges at all discharge locations within two business days (48 hours) after each qualifying rain event.

b. Risk Level 3 dischargers shall visually observe (inspect) the discharge of stored or contained storm water that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Stored or contained storm water that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to the discharge during operating hours.

c. Risk Level 3 dischargers shall conduct visual observations (inspections) during business hours only.

d. Risk Level 3 dischargers shall record the time, date and rain gauge reading of all qualifying rain events.

e. Within 2 business days (48 hours) prior to each qualifying rain event, Risk Level 3 dischargers shall visually observe (inspect):

i. all storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the discharger shall implement appropriate corrective actions.

ii. all BMPs to identify whether they have been properly implemented in accordance with the SWPPP/REAP. If needed, the discharger shall implement appropriate corrective actions.

iii. any storm water storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

f. For the visual observations (inspections) described in c.i. and c.iii above, Risk Level 3 dischargers shall observe the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

g. Within two business days (48 hours) after each qualifying rain event, Risk Level 3 dischargers shall conduct post rain event visual observations (inspections) to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.

h. Risk Level 3 dischargers shall maintain on-site records of all visual observations (inspections), personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

4. **Risk Level 3 – Water Quality Sampling and Analysis**

a. Risk Level 3 dischargers shall collect storm water grab samples from sampling locations, as defined in Section I.5. The storm water grab sample(s) obtained shall be representative of the flow and characteristics of the discharge.

b. At minimum, Risk Level 3 dischargers shall collect 3 samples per day of the qualifying event.

c. Risk Level 3 dischargers shall ensure that the grab samples collected of stored or contained storm water are from discharges subsequent to a qualifying rain event (producing precipitation of ½ inch or more at the time of discharge).

<u>Storm Water Effluent Monitoring Requirements</u>

d. Risk Level 3 dischargers shall analyze their effluent samples for:

i. pH and turbidity.

ii. Any additional parameters for which monitoring is required by the Regional Water Board.

e. Risk 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 5 days after the conclusion of the storm event.

f. Risk Level 3 discharger sites that have violated the turbidity daily average NEL shall analyze subsequent effluent samples for all the parameters specified in Section I.4.e, above, and Suspended Sediment Concentration (SSC).

Receiving Water Monitoring Requirements

g. In the event that a Risk Level 3 discharger violates an NEL contained in this General Permit and has a direct discharge into receiving waters, the Risk Level 3 discharger shall subsequently sample receiving waters (RWs) for all parameter(s) required in Section I.4.e above for the duration of coverage under this General Permit.

h. Risk Level 3 dischargers disturbing 30 acres or more of the landscape and with direct discharges into receiving waters shall conduct or participate in benthic macroinvertebrate bioassessment of RWs prior to commencement of construction activity (See Appendix 3).

i. Risk Level 3 dischargers shall obtain RW samples in accordance with the Receiving Water sampling location section (Section I.5), below.

5. **Risk Level 3 – Storm Water Discharge Water Quality Sampling Locations**

Effluent Sampling Locations

a. Risk Level 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire project disturbed area.

b. Risk Level 3 dischargers shall collect effluent samples at all discharge points where storm water is discharged off-site.

c. Risk Level 3 dischargers shall ensure that storm water discharge collected and observed represent[5] the effluent in each drainage area based on visual observation of the water and upstream conditions.

d. Risk Level 3 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs or NELs.

e. Risk Level 3 dischargers who deploy an ATS on their site, or a portion on their site, shall collect ATS effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.

f. Risk Level 3 dischargers shall select analytical test methods from the list provided in Table 3 below.

g. All storm water sample collection preservation and handling shall be conducted in accordance with Section I.7 "Storm Water Sample Collection and Handling Instructions" below.

Receiving Water Sampling Locations

h. **Upstream/up-gradient RW samples**: Risk Level 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible and upstream from the effluent discharge point.

i. **Downstream/down-gradient RW samples**: Risk Level 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible and downstream from the effluent discharge point.

j. If two or more discharge locations discharge to the same receiving water, Risk Level 3 dischargers may sample the receiving water at a single upstream and downstream location.

[5] For example, if there has been concrete work recently in an area, or drywall scrap is exposed to the rain, a pH sample shall be taken of drainage from the relevant work area. Similarly, if sediment-laden water is flowing through some parts of a silt fence, samples shall be taken of the sediment laden water even if most water flowing through the fence is clear.

6. **Risk Level 3 – Visual Observation and Sample Collection Exemptions**

   a. Risk Level 3 dischargers shall be prepared to collect samples and conduct visual observation (inspections) until the minimum requirements of Sections I.3 and I.4 above are completed. Risk Level 3 dischargers are not required to physically collect samples or conduct visual observation (inspections) under the following conditions:

      i. During dangerous weather conditions such as flooding and electrical storms.

      ii. Outside of scheduled site business hours.

   b. If no required samples or visual observation (inspections) are collected due to these exceptions, Risk Level 3 dischargers shall include an explanation in their SWPPP and in the Annual Report documenting why the sampling or visual observation (inspections) were not conducted.

7. **Risk Level 3 – Storm Water Sample Collection and Handling Instructions**

   a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

   b. Risk Level 3 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.

   c. Risk Level 3 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).[6]

[6] Additional information regarding SWAMP's QAPrP and QAMP can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.
QAPrP:http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf
QAMP: http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml

8. **Risk Level 3 – Monitoring Methods**

   a. Risk Level 3 dischargers shall include a description of the following items in the CSMP:

      i. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

      ii. Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program an example Chain of Custody form used when handling and shipping samples.

      iii. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section I.4 above.

   b. Risk Level 3 dischargers shall ensure that all sampling and sample preservation are in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) should be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. Risk Level 3 dischargers shall ensure that all laboratory analyses are conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses should be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services (SSC exception). Risk Level 3 dischargers shall conduct their own field analysis of pH and may conduct their own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

9. **Risk Level 3 – Analytical Methods**

   a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. **pH**: Risk Level 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or a pH test kit. Risk Level 3 dischargers shall record pH monitoring results on paper and retain these records in accordance with Section I.14, below.

c. **Turbidity**: Risk Level 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results will be recorded in the site log book in Nephelometric Turbidity Units (NTU).

d. **Suspended sediment concentration (SSC)**: Risk Level 3 dischargers shall perform SSC analysis using ASTM Method D3977-97.

e. **Bioassessment**: Risk Level 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

10. **Risk Level 3 - Non-Storm Water Discharge Monitoring Requirements**

a. Visual Monitoring Requirements:

i. Risk Level 3 dischargers shall visually observe (inspect) each drainage area for the presence of (or indications of prior) unauthorized and authorized non-storm water discharges and their sources.

ii. Risk Level 3 dischargers shall conduct one visual observation (inspection) quarterly in each of the following periods: January-March, April-June, July-September, and October-December. Visual observation (inspections) are only required during daylight hours (sunrise to sunset).

iii. Risk Level 3 dischargers shall ensure that visual observations (inspections) document the presence or evidence of any non-storm water discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source. Risk Level 3 dischargers shall maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to

reduce or prevent pollutants from contacting non-storm water discharges.

b. Effluent Sampling Locations:

i. Risk Level 3 dischargers shall sample effluent at all discharge points where non-storm water and/or authorized non-storm water is discharged off-site.

ii. Risk Level 3 dischargers shall send all non-storm water sample analyses to a laboratory certified for such analyses by the State Department of Health Services.

iii. Risk Level 3 dischargers shall monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs or NELs.

11. **Risk Level 3 – Non-Visible Pollutant Monitoring Requirements**

a. Risk Level 3 dischargers shall collect one or more samples during any breach, malfunction, leakage, or spill observed during a visual inspection which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water.

b. Risk Level 3 dischargers shall ensure that water samples are large enough to characterize the site conditions.

c. Risk Level 3 dischargers shall collect samples at all discharge locations that can be safely accessed.

d. Risk Level 3 dischargers shall collect samples during the first two hours of discharge from rain events that occur during business hours and which generate runoff.

e. Risk Level 3 dischargers shall analyze samples for all non-visible pollutant parameters (if applicable) - parameters indicating the presence of pollutants identified in the pollutant source assessment required (Risk Level 3 dischargers shall modify their CSMPs to address these additional parameters in accordance with any updated SWPPP pollutant source assessment).

f. Risk Level 3 dischargers shall collect a sample of storm water that has not come in contact with the disturbed soil or the materials stored or used on-site (uncontaminated sample) for comparison with the discharge sample.

g. Risk Level 3 dischargers shall compare the uncontaminated sample to the samples of discharge using field analysis or through laboratory analysis.[7]

h. Risk Level 3 dischargers shall keep all field /or analytical data in the SWPPP document.

12. **Risk Level 3 – Watershed Monitoring Option**

Risk Level 3 dischargers who are part of a qualified regional watershed-based monitoring program may be eligible for relief from the requirements in Sections I.5. The Regional Water Board may approve proposals to substitute an acceptable watershed-based monitoring program by determining if the watershed-based monitoring program will provide substantially similar monitoring information in evaluating discharger compliance with the requirements of this General Permit.

13. **Risk Level 3 – Particle Size Analysis for Project Risk Justification**

Risk Level 3 dischargers justifying an alternative project risk shall report a soil particle size analysis used to determine the RUSLE K-Factor. ASTM D-422 (Standard Test Method for Particle-Size Analysis of Soils), as revised, shall be used to determine the percentages of sand, very fine sand, silt, and clay on the site.

14. **Risk Level 3 – Records**

Risk Level 3 dischargers shall retain records of all storm water monitoring information and copies of all reports (including Annual Reports) for a period of at least three years. Risk Level 3 dischargers shall retain all records on-site while construction is ongoing. These records include:

a. The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation.

b. The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and or measurements.

c. The date and approximate time of analyses.

[7] For laboratory analysis, all sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136. Field discharge samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices employed.

d. The individual(s) who performed the analyses.

e. A summary of all analytical results from the last three years, the method detection limits and reporting units, the analytical techniques or methods used, and the chain of custody forms.

f. Rain gauge readings from site inspections.

g. Quality assurance/quality control records and results.

h. Non-storm water discharge inspections and visual observation (inspections) and storm water discharge visual observation records (see Sections I.3 and I.10 above).

i. Visual observation and sample collection exception records (see Section I.6 above).

j. The records of any corrective actions and follow-up activities that resulted from analytical results, visual observation (inspections), or inspections.

15. **Risk Level 3 – NAL Exceedance Report**

a. In the event that any effluent sample exceeds an applicable NAL, Risk Level 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report.

b. Risk Level 3 dischargers shall certify each NAL Exceedance Report in accordance with the Special Provisions for Construction Activity In this General Permit.

c. Risk Level 3 dischargers shall retain an electronic or paper copy of each NAL Exceedance Report for a minimum of three years after the date the annual report is filed.

d. Risk Level 3 dischargers shall include in the NAL Exceedance Report:

i. The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as “less than the method detection limit”).

ii. The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.

iii. A description of the current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

16. **Risk Level 3 – NEL Violation Report**

a. Risk Level 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 5 days after the conclusion of the storm event.

b. In the event that a discharger has violated an applicable NEL, Risk Level 3 dischargers shall submit an NEL Violation Report to the State Water Board within 24 hours after the NEL exceedance has been identified.

c. Risk Level 3 dischargers shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity in this General Permit.

d. Risk Level 3 dischargers shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the annual report is filed.

e. Risk Level 3 dischargers shall include in the NEL Violation Report:

i. The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as “less than the method detection limit”);

ii. The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation; and

iii. A Description of the current onsite BMPs, and the proposed corrective actions taken to manage the NEL exceedance.

f. Compliance Storm Exemption - In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, Risk level 3 discharger shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification.

17. **Risk Level 3 – Bioassessment**

a. Risk Level 3 dischargers with a total project-related ground disturbance exceeding 30 acres shall:

i. Conduct bioassessment monitoring, as described in Appendix 3.

ii. Include the collection and reporting of specified in stream biological data and physical habitat.

iii. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP).[8]

b. Risk Level 3 dischargers qualifying for bioassessment, where construction commences out of an index period for the site location shall:

i. Receive Regional Board approval for the sampling exception.

ii. Conduct bioassessment monitoring, as described in Appendix 3.

iii. Include the collection and reporting of specified instream biological data and physical habitat.

iv. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP).

OR

v. Make a check payable to: Cal State Chico Foundation (SWAMP Bank Account) or San Jose State Foundation (SWAMP Bank Account) and include the WDID# on the check for the amount calculated for the exempted project.

vi. Send a copy of the check to the Regional Water Board office for the site's region.

vii. Invest $**7,500.00 X The number of samples required** into the SWAMP program as compensation (upon regional board approval).

[8] http://www.waterboards.ca.gov/water_issues/programs/swamp/.

Table 3 – Risk Level 3 Test Methods, Detection Limits, Reporting Units and Applicable NALs/NELs

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level	Numeric Effluent Limitation
pH	Field test with calibrated portable instrument	Risk Level 3 Discharges	0.2 pH	units	lower NAL = 6.5 upper NAL = 8.5	lower NEL = 6.0 upper NEL = 9.0
Turbidity EPA	0180.1 and/or field test with calibrated portable instrument	Risk Level 3 Discharges other than ATS	1	NTU	250 NTU	500 NTU
		For ATS discharges	1 NTU		N/A	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample
SSC ASTM	Method D 3977-97[9]	Risk Level 3 (if NEL exceeded)	5 mg/L		N/A	N/A
Bioassessment	(STE) Level I of (SAFIT),[10] fixed-count of 600 org/sample	Risk Level 3 projects> 30 acres	N/A N/A		N/A	N/A

[9] ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394.

[10] The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

ATTACHMENT F:
Active Treatment System (ATS) Requirements

Table 1 – Numeric Effluent Limitations, Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	Numeric Effluent Limitation
Turbidity	EPA 0180.1 and/or field test with a calibrated portable instrument	For ATS discharges	1 NTU		N/A	10 NTU for Daily Flow-Weighted Average & 20 NTU for Any Single Sample

A. Dischargers choosing to implement an Active Treatment System (ATS) on their site shall comply with all of the requirements in this Attachment.

B. The discharger shall maintain a paper copy of each ATS specification onsite in compliance with the record retention requirements in the Special Provisions of this General Permit.

C. ATS Design, Operation and Submittals

1. The ATS shall be designed and approved by a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Professional in Storm Water Quality (CPSWQ); a California registered civil engineer; or any other California registered engineer.

2. The discharger shall ensure that the ATS is designed in a manner to preclude the accidental discharge of settled floc[1] during floc pumping or related operations.

3. The discharger shall design outlets to dissipate energy from concentrated flows.

4. The discharger shall install and operate an ATS by assigning a lead person (or project manager) who has either a minimum of five years construction storm

[1] Floc is defined as a clump of solids formed by the chemical action in ATS systems.

water experience or who is a licensed contractors specifically holding a California Class A Contractors license.[2]

5. The discharger shall prepare an ATS Plan that combines the site-specific data and treatment system information required to safely and efficiently operate an ATS. The ATS Plan shall be electronically submitted to the State Water Board at least 14 days prior to the planned operation of the ATS and a paper copy shall be available onsite during ATS operation. At a minimum, the ATS Plan shall include:

   a. ATS Operation and Maintenance Manual for All Equipment.

   b. ATS Monitoring, Sampling & Reporting Plan, including Quality Assurance/Quality Control (QA/QC).

   c. ATS Health and Safety Plan.

   d. ATS Spill Prevention Plan.

6. The ATS shall be designed to capture and treat (within a 72-hour period) a volume equivalent to the runoff from a 10-year, 24-hour storm event using a watershed runoff coefficient of 1.0.

D. Treatment – Chemical Coagulation/Flocculation

1. Jar tests shall be conducted using water samples selected to represent typical site conditions and in accordance with ASTM D2035-08 (2003).

2. The discharger shall conduct, at minimum, six site-specific jar tests (per polymer with one test serving as a control) for each project to determine the proper polymer and dosage levels for their ATS.

3. Single field jar tests may also be conducted during a project if conditions warrant, for example if construction activities disturb changing types of soils, which consequently cause change in storm water and runoff characteristics.

E. Residual Chemical and Toxicity Requirements

1. The discharger shall utilize a residual chemical test method that has a method detection limit (MDL) of 10% or less than the maximum allowable threshold

[2] Business and Professions Code Division 3, Chapter 9, Article 4, Class A Contractor: A general engineering contractor is a contractor whose principal contracting business is in connection with fixed works requiring specialized engineering knowledge and skill. [http://www.cslb.ca.gov/General-Information/library/licensing-classifications.asp].

concentration[3] (MATC) for the specific coagulant in use and for the most sensitive species of the chemical used.

2. The discharger shall utilize a residual chemical test method that produces a result within one hour of sampling.

3. The discharger shall have a California State certified laboratory validate the selected residual chemical test. Specifically the lab will review the test protocol, test parameters, and the detection limit of the coagulant. The discharger shall electronically submit this documentation as part of the ATS Plan.

4. If the discharger cannot utilize a residual chemical test method that meets the requirements above, the discharger shall operate the ATS in Batch Treatment[4] mode.

5. A discharger planning to operate in Batch Treatment mode shall perform toxicity testing in accordance with the following:

   a. The discharger shall initiate acute toxicity testing on effluent samples representing effluent from each batch prior to discharge[5]. All bioassays shall be sent to a laboratory certified by the Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP). The required field of testing number for Whole Effluent Toxicity (WET) testing is E113.[6]

   b. Acute toxicity tests shall be conducted with the following species and protocols. The methods to be used in the acute toxicity testing shall be those outlined for a 96-hour acute test in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, USEPA-841-R-02-012" for Fathead minnow, *Pimephales promelas* (fathead minnow). Acute toxicity for *Oncorhynchus mykiss* (Rainbow Trout) may be used as a substitute for testing fathead minnows.

   c. All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the EPA test method for WET testing.

   d. The discharger shall electronically report all acute toxicity testing.

[3] The Maximum Allowable Threshold Concentration (MATC) is the allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. A typical MATC would be:
The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.
[4] Batch Treatment mode is defined as holding or recirculating the treated water in a holding basin or tank(s) until treatment is complete or the basin or storage tank(s) is full.
[5] This requirement only requires that the test be initiated prior to discharge.
[6] http://www.dhs.ca.gov/ps/ls/elap/pdf/FOT_Desc.pdf.

F. Filtration

1. The ATS shall include a filtration step between the coagulant treatment train and the effluent discharge. This is commonly provided by sand, bag, or cartridge filters, which are sized to capture suspended material that might pass through the clarifier tanks.

2. Differential pressure measurements shall be taken to monitor filter loading and confirm that the final filter stage is functioning properly.

G. Residuals Management

1. Sediment shall be removed from the storage or treatment cells as necessary to ensure that the cells maintain their required water storage (i.e., volume) capability.

2. Handling and disposal of all solids generated during ATS operations shall be done in accordance with all local, state, and federal laws and regulations.

H. ATS Instrumentation

1. The ATS shall be equipped with instrumentation that automatically measures and records effluent water quality data and flow rate.

2. The minimum data recorded shall be consistent with the Monitoring and Reporting requirements below, and shall include:

   a. Influent Turbidity

   b. Effluent Turbidity

   c. Influent pH

   d. Effluent pH

   e. Residual Chemical

   f. Effluent Flow rate

   g. Effluent Flow volume

3. Systems shall be equipped with a data recording system, such as data loggers or webserver-based systems, which records each measurement on a frequency no longer than once every 15 minutes.

4. Cumulative flow volume shall be recorded daily. The data recording system shall have the capacity to record a minimum of seven days continuous data.

5. Instrumentation systems shall be interfaced with system control to provide auto shutoff or recirculation in the event that effluent measurements exceed turbidity or pH.

6. The system shall also assure that upon system upset, power failure, or other catastrophic event, the ATS will default to a recirculation mode or safe shut down.

7. Instrumentation (flow meters, probes, valves, streaming current detectors, controlling computers, etc.) shall be installed and maintained per manufacturer's recommendations, which shall be included in the QA/QC plan.

8. The QA/QC plan shall also specify calibration procedures and frequencies, instrument method detection limit or sensitivity verification, laboratory duplicate procedures, and other pertinent procedures.

9. The instrumentation system shall include a method for controlling coagulant dose, to prevent potential overdosing. Available technologies include flow/turbidity proportional metering, periodic jar testing and metering pump adjustment, and ionic charge measurement controlling the metering pump.

I. ATS Effluent Discharge

1. ATS effluent shall comply with all provisions and prohibitions in this General Permit, specifically the NELs.

2. NELs for discharges from an ATS:

   a. Turbidity of all ATS discharges shall be less than 10 NTU for daily flow-weighted average of all samples and 20 NTU for any single sample.

   b. Residual Chemical shall be < 10% of MATC[7] for the most sensitive species of the chemical used.

3. If an analytical effluent sampling result is outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General

[7] The Maximum Allowable Threshold Concentration (MATC) is the allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

Permit and shall electronically file the results in violation within 24-hours of obtaining the results.

4. If ATS effluent is authorized to discharge into a sanitary sewer system, the discharger shall comply with any pre-treatment requirements applicable for that system. The discharger shall include any specific criteria required by the municipality in the ATS Plan.

5. Compliance Storm Event:

   Discharges of storm water from ATS shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for ATS discharges is the 10 year, 24 hour storm, as determined using these maps:

   http://www.wrcc.dri.edu/pcpnfreq/nca10y24.gif
   http://www.wrcc.dri.edu/pcpnfreq/sca10y24.gif

   This exemption is dependent on the submission of rain gauge data verifying the storm event is equal to or larger than the Compliance Storm.

J. Operation and Maintenance Plan

1. Each Project shall have a site-specific Operation and Maintenance (O&M) Manual covering the procedures required to install, operate and maintain the ATS.[8]

2. The O&M Manual shall only be used in conjunction with appropriate project-specific design specifications that describe the system configuration and operating parameters.

3. The O&M Manual shall have operating manuals for specific pumps, generators, control systems,and other equipment.

K. Sampling and Reporting Quality Assurance/ Quality Check (QA/QC) Plan

4. A project-specific QA/QC Plan shall be developed for each project. The QA/QC Plan shall include at a minimum:

   a. Calibration – Calibration methods and frequencies for all system and field instruments shall be specified.

   b. Method Detection Limits (MDLs) – The methods for determining MDLs shall be specified for each residual coagulant measurement method. Acceptable

[8] The manual is typically in a modular format covering generalized procedures for each component that is utilized in a particular system.

minimum MDLs for each method, specific to individual coagulants, shall be specified.

c. Laboratory Duplicates – Requirements for monthly laboratory duplicates for residual coagulant analysis shall be specified.

L. Personnel Training

1. Operators shall have training specific to using an ATS and liquid coagulants for storm water discharges in California.

2. The training shall be in the form of a formal class with a certificate and requirements for testing and certificate renewal.

3. Training shall include a minimum of eight hours classroom and 32 hours field training. The course shall cover the following topics:

   a. Coagulation Basics –Chemistry and physical processes

   b. ATS System Design and Operating Principles

   c. ATS Control Systems

   d. Coagulant Selection – Jar testing, dose determination, etc.

   e. Aquatic Safety/Toxicity of Coagulants, proper handling and safety

   f. Monitoring, Sampling, and Analysis

   g. Reporting and Recordkeeping

   h. Emergency Response

M. Active Treatment System (ATS) Monitoring Requirements

Any discharger who deploys an ATS on their site shall conduct the following:

1. Visual Monitoring

   a. A designated responsible person shall be on site daily at all times during treatment operations.

   b. Daily on-site visual monitoring of the system for proper performance shall be conducted and recorded in the project data log.

i. The log shall include the name and phone number of the person responsible for system operation and monitoring.

ii. The log shall include documentation of the responsible person's training.

2. Operational and Compliance Monitoring

a. Flow shall be continuously monitored and recorded at not greater than 15-minute intervals for total volume treated and discharged.

b. Influent and effluent pH must be continuously monitored and recorded at not greater than 15-minute intervals.

c. Influent and effluent turbidity (expressed in NTU) must be continuously monitored and recorded at not greater than 15-minute intervals.

d. The type and amount of chemical used for pH adjustment, if any, shall be monitored and recorded.

e. Dose rate of chemical used in the ATS system (expressed in mg/L) shall be monitored and reported 15-minutes after startup and every 8 hours of operation.

f. Laboratory duplicates – monthly laboratory duplicates for residual coagulant analysis must be performed and records shall be maintained onsite.

g. Effluent shall be monitored and recorded for residual chemical/additive levels.

h. If a residual chemical/additive test does not exist and the ATS is operating in a batch treatment mode of operation refer to the toxicity monitoring requirements below.

3. Toxicity Monitoring

A discharger operating in batch treatment mode shall perform toxicity testing in accordance with the following:

a. The discharger shall initiate acute toxicity testing on effluent samples representing effluent from each batch prior to discharge.[9] All bioassays shall be sent to a laboratory certified by the Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP). The required field of testing number for Whole Effluent Toxicity (WET) testing is E113.[10]

[9] This requirement only requires that the test be initiated prior to discharge.
[10] http://www.dhs.ca.gov/ps/ls/elap/pdf/FOT_Desc.pdf.

b. Acute toxicity tests shall be conducted with the following species and protocols. The methods to be used in the acute toxicity testing shall be those outlined for a 96-hour acute test in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, USEPA-841-R-02-012" for Fathead minnow, *Pimephales promelas or* Rainbow trout *Oncorhynchus mykiss* may be used as a substitute for fathead minnow.

c. All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the EPA test method for WET testing.[11]

4. Reporting and Recordkeeping

At a minimum, every 30 days a LRP representing the discharger shall access the State Water Boards Storm Water Mulit-Application and Report Tracking system (SMARTS) and electronically upload field data from the ATS. Records must be kept for three years after the project is completed .

5. Non-compliance Reporting

a. Any indications of toxicity or other violations of water quality objectives shall be reported to the appropriate regulatory agency as required by this General Permit.

b. Upon any measurements that exceed water quality standards, the system operator shall immediately notify his supervisor or other responsible parties, who shall notify the Regional Water Board.

c. If any monitoring data exceeds any applicable NEL in this General Permit, the discharger shall electronically submit a NEL Violation Report to the State Water Board within 24 hours after the NEL exceedance has been identified.

i. ATS dischargers shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity in this General Permit.

ii. ATS dischargers shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the annual report is filed.

iii. ATS dischargers shall include in the NEL Violation Report:

(1) The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit");

[11] http://www.epa.gov/waterscience/methods/wet/.

(2) The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation; and

(3) A description of the current onsite BMPs, and the proposed corrective actions taken to manage the NEL exceedance.

iv. Compliance Storm Exemption - In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, ATS dischargers shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification.

Risk Determination Worksheet

Step 1	Determine Sediment Risk via one of the options listed: 1. GIS Map Method - EPA Rainfall Erosivity Calculator & GIS map 2. Individual Method - EPA Rainfall Erosivity Calculator & Individual Data
Step 2	Determine Receiving Water Risk via one of the options listed: 1. GIS map of Sediment Sensitive Watersheds provided (in development) 2. List of Sediment Sensitive Watersheds provided
Step 3	Determine Combined Risk Level

Sediment Risk Factor Worksheet	Entry

A) R Factor

Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.

http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm

R Factor Value	0

B) K Factor (weighted average, by area, for all site soils)

The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.

Site-specific K factor guidance

K Factor Value	0

C) LS Factor (weighted average, by area, for all slopes)

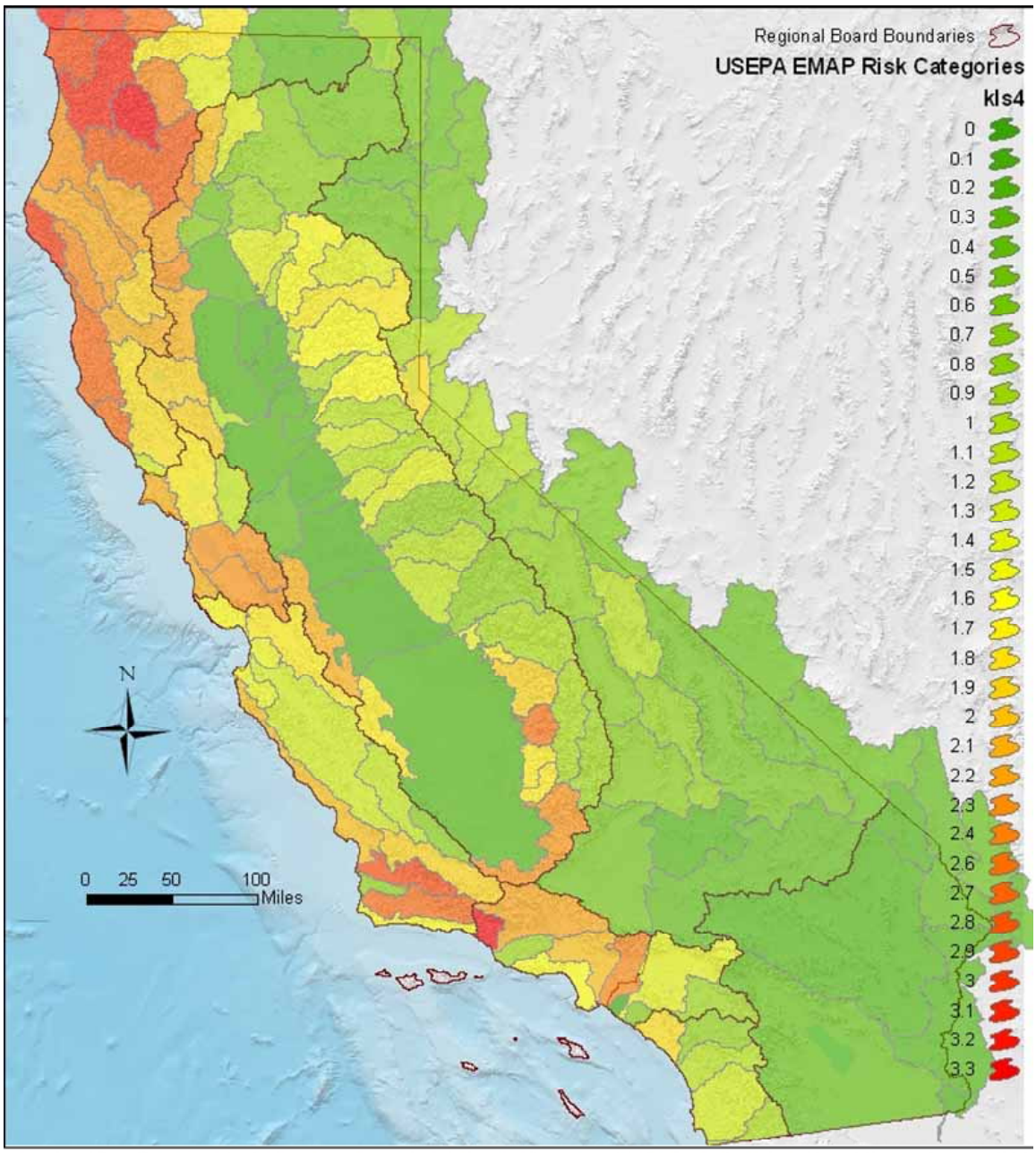
The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.

LS Table

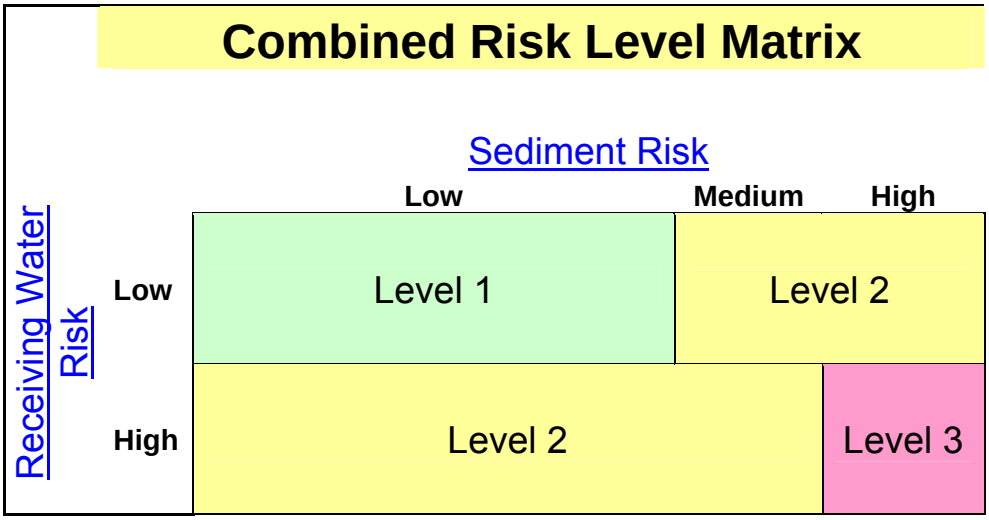
LS Factor Value	0

Watershed Erosion Estimate (=RxKxLS) in tons/acre	0
Site Sediment Risk Factor Low Sediment Risk: < 15 tons/acre Medium Sediment Risk: >=15 and <75 tons/acre High Sediment Risk: >= 75 tons/acre	**Low**

For the GIS Map Method, the R factor for the project is calculated using the online calculator at (see cell to right). The product of K and LS are shown on the figure below. To determine soil loss in tons per acre, multiply the R factor times the value for K times LS from the map.
http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm



Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment**? (For help with impaired waterbodies please check the attached worksheet or visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: 2006 Approved Sediment-impared WBs Worksheet http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml **OR**	**Yes**	**High**
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? http://www.ice.ucdavis.edu/geowbs/asp/wbquse.asp		



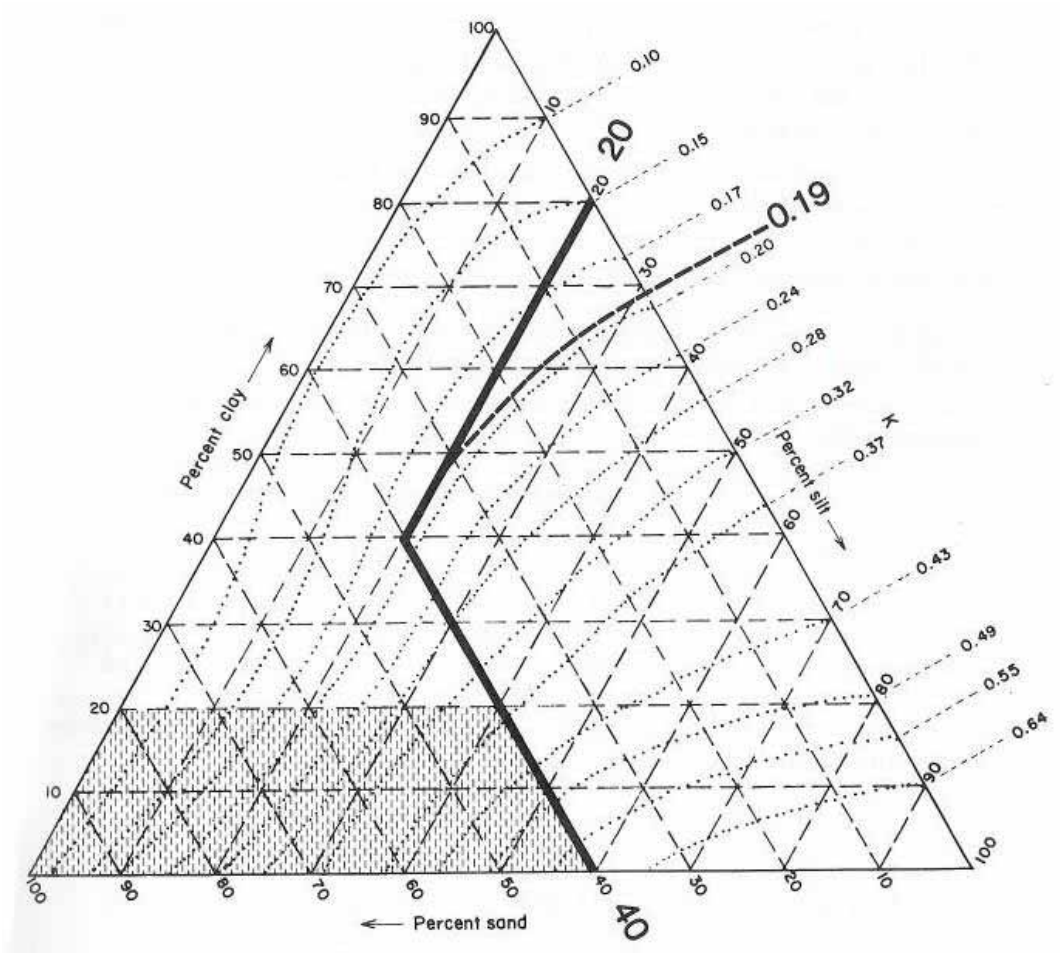
Project Sediment Risk: Low

Project RW Risk: High

Project Combined Risk: Level 2

Soil Erodibility Factor (K)

The K factor can be determined by using the nomograph method, which requires that a particle size analysis (ASTM D-422) be done to determine the percentages of sand, very fine sand, silt and clay. Use the figure below to determine appropriate K value.



Erickson triangular nomograph used to estimate soil erodibility (K) factor.
The figure above is the USDA nomograph used to determine the K factor for a soil, based on its texture (% silt plus very fine sand, % sand, % organic matter, soil structure, and permeability).
Nomograph from Erickson 1977 as referenced in Goldman et. al., 1986.

Sheet Flow Length (ft)	Average Watershed Slope (%)														
	0.2	**0.5**	**1.0**	**2.0**	**3.0**	**4.0**	**5.0**	**6.0**	**8.0**	**10.0**	**12.0**	**14.0**	**16.0**	**20.0**	
<3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.35	0.36	0.38	0.39	0.41	
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.37	0.41	0.45	0.49	0.56	
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.38	0.45	0.51	0.56	0.67	
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.39	0.47	0.55	0.62	0.76	
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.40	0.49	0.58	0.67	0.84	
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	0.45	0.57	0.71	0.85	0.98	1.24	
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	0.70	0.91	1.15	1.40	1.64	2.10	
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	0.91	1.20	1.54	1.87	2.21	2.86	
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	1.10	1.46	1.88	2.31	2.73	3.57	
150	0.05	0.09	0.17	0.33	0.50	0.68	0.86	1.05	1.43	1.92	2.51	3.09	3.68	4.85	
200	0.06	0.10	0.18	0.37	0.57	0.79	1.02	1.25	1.72	2.34	3.07	3.81	4.56	6.04	
250	0.06	0.10	0.19	0.40	0.64	0.89	1.16	1.43	1.99	2.72	3.60	4.48	5.37	7.16	
300	0.06	0.10	0.20	0.43	0.69	0.98	1.28	1.60	2.24	3.09	4.09	5.11	6.15	8.23	1
400	0.06	0.11	0.22	0.48	0.80	1.14	1.51	1.90	2.70	3.75	5.01	6.30	7.60	10.24	1
600	0.06	0.12	0.24	0.56	0.96	1.42	1.91	2.43	3.52	4.95	6.67	8.45	10.26	13.94	1
800	0.06	0.12	0.26	0.63	1.10	1.65	2.25	2.89	4.24	6.03	8.17	10.40	12.69	17.35	2
1000	0.06	0.13	0.27	0.69	1.23	1.86	2.55	3.30	4.91	7.02	9.57	12.23	14.96	20.57	2

LS Factors for Construction Sites. *Table from Renard et. al., 1997.*

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	1510	Range Grazing-Riparian	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAE115301	1	North Coast	E	Estuaries	Bodega HU, Estero Americano HA, estuary	11530012	199	A	Acres	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Water Quality Attainment strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek T Water Quality Attainment Strategy, adopted by NCRWQCB in Dec, 97.
CAR11111	1	North Coast	R	Rivers/Streams	Eel River HU, Lower Eel River HA, Eel River Delta	11110000	426	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2019	
CAR11111	1	North Coast	R	Rivers/Streams	Eel River HU, Lower Eel River HA, Eel River Delta	11110000	426	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR11111	1	North Coast	R	Rivers/Streams	Eel River HU, Lower Eel River HA, Eel River Delta	11110000	426	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	1510	Range Grazing-Riparian	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	1520	Range Grazing-Upland	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	2100	Harvesting, Restoration, Residue Management	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	2300	Logging Road Construction/Maintenance	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2004	
CAR11141	1	North Coast	R	Rivers/Streams	Eel River HU, Middle Main HA	11140000	674	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2004	
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	1935	Agriculture-grazing	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	2100	Harvesting, Restoration, Residue Management	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	2300	Logging Road Construction/Maintenance	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	2400	Silvicultural Point Sources	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11162	1	North Coast	R	Rivers/Streams	Eel River HU, Upper Main HA (Includes Tomki Creek)	11160000	1141	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	USEPA will develop a TMDL for Eel River, Upper Main Fork.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	2100	Harvesting, Restoration, Residue Management	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	2300	Logging Road Construction/Maintenance	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Elk River	11000000	88	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	The Eureka Plain HU, Elk River, includes the following Calwater Planning Watersheds (PWS): 110.00021, 110.00030, 110.00032, and 110.00042. Sedimentation, threat sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	2100	Harvesting, Restoration, Residue Management	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	2300	Logging Road Construction/Maintenance	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR11000	1	North Coast	R	Rivers/Streams	Eureka Plain HU, Freshwater Creek	11000000	84	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	The Eureka Plain HU, Freshwater Creek, includes the following Calwater Planning Watersheds (PWS): 110.00011, 110.00012, 110.00014, 110.00040, and 110.00050. Sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, property damage. NCRWQCB and California Department of forestry staff are involved in ongoing efforts to attain adherance to Forest Practice Rules.
CAR10511	1	North Coast	R	Rivers/Streams	Klamath River HU, Lower HA, Klamath Glen HSA	10511000	609	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	If this listing is determined to be on tribal lands, USEPA should place this water body and pollutant on the section 303d list for the tribal lands. It is not the State Water Board's inten this listing affect other actions related to decommissioning and removal of dams on the Klamath River
CAR10910	1	North Coast	R	Rivers/Streams	Mad River HU, Mad River	10900000	654	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	USEPA will develop TMDL for the Mad River. Sediment TMDLS will be developed for the area tributary to and including: (1) the Mad River (North Fork), (2) the mad River (Upper), (3) the Mad River (Middle).
CAR10910	1	North Coast	R	Rivers/Streams	Mad River HU, Mad River	10900000	654	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	USEPA will develop TMDL for the Mad River. Sediment TMDLS will be developed for the area tributary to and including: (1) the Mad River (North Fork), (2) the mad River (Upper), (3) the Mad River (Middle).
CAR10910	1	North Coast	R	Rivers/Streams	Mad River HU, Mad River	10900000	654	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	USEPA will develop TMDL for the Mad River. Sediment TMDLS will be developed for the area tributary to and including: (1) the Mad River (North Fork), (2) the mad River (Upper), (3) the Mad River (Middle).
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	7300	Dam Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	7400	Flow Regulation/Modification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11412	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Austin Creek HSA	11412000	81	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment.
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	1300	Specialty Crop Production	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	1935	Agriculture-grazing	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7300	Dam Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7350	Upstream Impoundment	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7400	Flow Regulation/Modification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11411	1	North Coast	R	Rivers/Streams	Russian River HU, Lower Russian River HA, Guerneville HSA	11411000	195	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11426	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Big Sulphur Creek HSA	11426000	85	M	Miles	1100	Sedimentation/Siltation	3210	Geothermal Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11426	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Big Sulphur Creek HSA	11426000	85	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11426	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Big Sulphur Creek HSA	11426000	85	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1100	Nonirrigated Crop Production	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1300	Specialty Crop Production	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1510	Range Grazing-Riparian	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1520	Range Grazing-Upland	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	1935	Agriculture-grazing	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	3210	Geothermal Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	4501	Surface Runoff	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7500	Bridge Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11425	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Geyserville HSA	11425000	242	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment TMDL.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1300	Specialty Crop Production	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1510	Range Grazing-Riparian	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1600	Intensive Animal Feeding Operations	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	1935	Agriculture-grazing	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	2100	Harvesting, Restoration, Residue Management	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	4300	Other Urban Runoff	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	4501	Surface Runoff	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .

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CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	4300	Other Urban Runoff	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	4500	Highway/Road/Bridge Runoff	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	8050	Erosion From Derelict Land	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	8300	Highway Maintenance and Runoff	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR11421	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Laguna de Santa Rosa	11421000	96	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Entire Russian River watershed (including Laguna de Santa Rosa) is listed for sedimentation.
CAR30411	3	Central Coast	R	Rivers/Streams	San Vicente Creek	30411023	9.11953	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (below city of Lompoc to Ocean)	31410040	3.8	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (below city of Lompoc to Ocean)	31410040	3.8	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (below city of Lompoc to Ocean)	31410040	3.8	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (Cachuma Lake to below city o Lompoc)	31440050	43	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (Cachuma Lake to below city o Lompoc)	31440050	43	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2019	
CAR31410	3	Central Coast	R	Rivers/Streams	Santa Ynez River (Cachuma Lake to below city o Lompoc)	31440050	43	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	
CAR31300	3	Central Coast	R	Rivers/Streams	Shuman Canyon Creek	31300041	8.5496	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR30413	3	Central Coast	R	Rivers/Streams	Valencia Creek	30413023	6.19	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2008	
CAR30413	3	Central Coast	R	Rivers/Streams	Valencia Creek	30413023	6.19	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2008	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Zayante Creek	30412040	9.20875	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR11423	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Mark West Creek HSA	11423000	99	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1100	Nonirrigated Crop Production	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1300	Specialty Crop Production	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1400	Pasture Grazing-Riparian and/or Upland	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1510	Range Grazing-Riparian	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1520	Range Grazing-Upland	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	1940	Dairies	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	4100	Urban Runoff--Non-industrial Permitted	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	4300	Other Urban Runoff	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	4501	Surface Runoff	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.

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CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7500	Bridge Construction	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11422	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Santa Rosa Creek	11422000	87	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Entire Russian River watershed (including Santa Rosa Creek) is listed for sedimentation.
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	2300	Logging Road Construction/Maintenance	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7300	Dam Construction	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7350	Upstream Impoundment	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7400	Flow Regulation/Modification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11424	1	North Coast	R	Rivers/Streams	Russian River HU, Middle Russian River HA, Warm Springs HSA	11424000	255	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Sediment impacts in Russian River tributaries prompted listing entire Russian River watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7100	Channelization	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7300	Dam Construction	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7400	Flow Regulation/Modification	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7500	Bridge Construction	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .

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CAR11432	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Coyote Valley HSA	11432000	171	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11433	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Forsythe Creek HSA	11433000	122	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11433	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Forsythe Creek HSA	11433000	122	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	8300	Highway Maintenance and Runoff	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAR11431	1	North Coast	R	Rivers/Streams	Russian River HU, Upper Russian River HA, Ukiah HSA	11431000	460	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2019	Russian River Watershed tributary sediment impairments led to listing of entire watershed for sediment .
CAB20114	2	San Francisco Bay	B	Bays and Harbors	Tomales Bay	20114033	8545.46	A	Acres	1100	Sedimentation/Siltation	1000	Agriculture	2008	TMDL will be developed as part of ongoing watershed management effort. Tributary streams, Lagunitas Creek and Walker Creek, must be managed first. Additional monitoring assessment needed.
CAB20114	2	San Francisco Bay	B	Bays and Harbors	Tomales Bay	20114033	8545.46	A	Acres	1100	Sedimentation/Siltation	7350	Upstream Impoundment	2008	TMDL will be developed as part of ongoing watershed management effort. Tributary streams, Lagunitas Creek and Walker Creek, must be managed first. Additional monitoring assessment needed.
CAR20240	2	San Francisco Bay	R	Rivers/Streams	Butano Creek	20240031	3.62774	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Impairment to steelhead habita
CAR20113	2	San Francisco Bay	R	Rivers/Streams	Lagunitas Creek	20113020	16.75	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2009	Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment nee
CAR20113	2	San Francisco Bay	R	Rivers/Streams	Lagunitas Creek	20113020	16.75	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2009	Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment nee
CAR20650	2	San Francisco Bay	R	Rivers/Streams	Napa River	20650010	65.33	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2006	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20650	2	San Francisco Bay	R	Rivers/Streams	Napa River	20650010	65.33	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2006	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20650	2	San Francisco Bay	R	Rivers/Streams	Napa River	20650010	65.33	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2006	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20650	2	San Francisco Bay	R	Rivers/Streams	Napa River	20650010	65.33	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2006	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20240	2	San Francisco Bay	R	Rivers/Streams	Pescadero Creek	20240013	26.03	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	If California Department of Fish and Game and the National Marine Fisheries Service find that for this water body fish populations are not impacted, the State Water Board supp removing this water body and pollutant from the list.
CAR20630	2	San Francisco Bay	R	Rivers/Streams	Petaluma River	20630020	21.566	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR20630	2	San Francisco Bay	R	Rivers/Streams	Petaluma River	20630020	21.566	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	
CAR20630	2	San Francisco Bay	R	Rivers/Streams	Petaluma River	20630020	21.566	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2019	
CAR20550	2	San Francisco Bay	R	Rivers/Streams	San Francisquito Creek	20550040	12.05	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2008	Impairment to steelhead habita
CAR20230	2	San Francisco Bay	R	Rivers/Streams	San Gregorio Creek	20230014	11.14	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	Impairment to steelhead habita
CAR20640	2	San Francisco Bay	R	Rivers/Streams	Sonoma Creek	20640050	30.23	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2008	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20640	2	San Francisco Bay	R	Rivers/Streams	Sonoma Creek	20640050	30.23	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2008	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20640	2	San Francisco Bay	R	Rivers/Streams	Sonoma Creek	20640050	30.23	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2008	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20640	2	San Francisco Bay	R	Rivers/Streams	Sonoma Creek	20640050	30.23	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2008	TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment nee
CAR20112	2	San Francisco Bay	R	Rivers/Streams	Walker Creek	20112013	15.8352	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2009	Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment nee
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	7000	Hydromodification	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	7200	Dredging	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAB30600	3	Central Coast	B	Bays and Harbors	Moss Landing Harbor	30600014	79.2726	A	Acres	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAE30600	3	Central Coast	E	Estuaries	Elkhorn Slough	30600014	2033.73	A	Acres	1100	Sedimentation/Siltation	1000	Agriculture	2015	
CAE30600	3	Central Coast	E	Estuaries	Elkhorn Slough	30600014	2033.73	A	Acres	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2015	
CAE30600	3	Central Coast	E	Estuaries	Elkhorn Slough	30600014	2033.73	A	Acres	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2015	
CAE30600	3	Central Coast	E	Estuaries	Elkhorn Slough	30600014	2033.73	A	Acres	1100	Sedimentation/Siltation	7810	Channel Erosion	2015	
CAE30600	3	Central Coast	E	Estuaries	Elkhorn Slough	30600014	2033.73	A	Acres	1100	Sedimentation/Siltation	9100	Nonpoint Source	2015	
CAE30600	3	Central Coast	E	Estuaries	Moro Cojo Slough	30913011	62.4949	A	Acres	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAE30600	3	Central Coast	E	Estuaries	Moro Cojo Slough	30913011	62.4949	A	Acres	1100	Sedimentation/Siltation	1200	Irrigated Crop Production	2019	
CAE30600	3	Central Coast	E	Estuaries	Moro Cojo Slough	30913011	62.4949	A	Acres	1100	Sedimentation/Siltation	1915	Agriculture-storm runoff	2019	
CAE30600	3	Central Coast	E	Estuaries	Moro Cojo Slough	30913011	62.4949	A	Acres	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	
CAE30600	3	Central Coast	E	Estuaries	Moro Cojo Slough	30913011	62.4949	A	Acres	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAE30413	3	Central Coast	E	Estuaries	Soquel Lagoon	30413014	1.15873	A	Acres	1100	Sedimentation/Siltation	3000	Construction/Land Development	2011	
CAR30413	3	Central Coast	R	Rivers/Streams	Aptos Creek	30413023	8.40589	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2008	
CAR30413	3	Central Coast	R	Rivers/Streams	Aptos Creek	30413023	8.40589	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2008	
CAR30412	3	Central Coast	R	Rivers/Streams	Bean Creek	30412041	8.90707	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bean Creek	30412041	8.90707	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bean Creek	30412041	8.90707	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bean Creek	30412041	8.90707	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bean Creek	30412041	8.90707	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bear Creek(Santa Cruz County	30412030	6.31531	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bear Creek(Santa Cruz County	30412030	6.31531	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bear Creek(Santa Cruz County	30412030	6.31531	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bear Creek(Santa Cruz County	30412030	6.31531	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Bear Creek(Santa Cruz County	30412030	6.31531	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	1300	Specialty Crop Production	2019	
CAR30412	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAR304123	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Boulder Creek	30412020	7.55958	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Branciforte Creek	30412051	5.78	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Branciforte Creek	30412051	5.78	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Branciforte Creek	30412051	5.78	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR313003	3	Central Coast	R	Rivers/Streams	Casmalia Canyon Creek	31300040	4.96262	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Fall Creek	30412022	5.07242	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Fall Creek	30412022	5.07242	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Fall Creek	30412022	5.07242	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Fall Creek	30412022	5.07242	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Kings Creek	30412011	4.36837	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Kings Creek	30412011	4.36837	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Kings Creek	30412011	4.36837	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Kings Creek	30412011	4.36837	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Kings Creek	30412011	4.36837	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Love Creek	30412021	3.78816	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Mountain Charlie Gulch	30412040	3.92844	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Mountain Charlie Gulch	30412040	3.92844	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Mountain Charlie Gulch	30412040	3.92844	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Mountain Charlie Gulch	30412040	3.92844	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	3110	Road Construction	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	3215	Disturbed Sites (Land Develop.)	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR304123	3	Central Coast	R	Rivers/Streams	Newell Creek (Upper	30412031	3.50199	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR404224	4	Los Angeles	R	Rivers/Streams	Las Virgenes Creek	40422010	11.62	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR404214	4	Los Angeles	R	Rivers/Streams	Malibu Creek	40421000	10.85	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR404244	4	Los Angeles	R	Rivers/Streams	Medea Creek Reach 1 (Lake to Confl. with Lindero)	40424000	2.57	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR403124	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 2 (estuary to Potrero Rd was Calleguas Creek Reaches 1 and 2 on 1998 303d list)	40312000	4.31213	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403124	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 2 (estuary to Potrero Rd was Calleguas Creek Reaches 1 and 2 on 1998 303d list)	40312000	4.31213	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403124	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 3 (Potrero Road upstream to confluence with Conejo Creek on 1998 303d list)	40312000	3.46697	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403124	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 3 (Potrero Road upstream to confluence with Conejo Creek on 1998 303d list)	40312000	3.46697	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403114	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 4 (was Revolon Slough Main Branch: Mugu Lagoon to Central Avenue on 1998 303d list)	40311000	7.18751	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403114	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 4 (was Revolon Slough Main Branch: Mugu Lagoon to Central Avenue on 1998 303d list)	40311000	7.18751	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403614	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 5 (was Beardsley Channe on 1998 303d list)	40311000	4.34088	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403614	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 5 (was Beardsley Channe on 1998 303d list)	40311000	4.34088	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403624	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 6 (was Arroyo Las Posas Reaches 1 and 2 on 1998 303d list)	40362000	15.2966	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403624	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 6 (was Arroyo Las Posas Reaches 1 and 2 on 1998 303d list)	40362000	15.2966	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403624	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 7 (was Arroyo Simi Reaches 1 and 2 on 1998 303d list)	40367000	13.9129	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403624	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 7 (was Arroyo Simi Reaches 1 and 2 on 1998 303d list)	40367000	13.9129	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403674	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 8 (was Tapo Canyon Reach 1)	40366000	7.18869	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403644	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 11 (Arroyo Santa Rosa was part of Conejo Creek Reach 3 on 1998 303d list)	40365000	8.68888	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR403644	4	Los Angeles	R	Rivers/Streams	Calleguas Creek Reach 11 (Arroyo Santa Rosa was part of Conejo Creek Reach 3 on 1998 303d list)	40365000	8.68888	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2005	For 2006, sedimentation/siltation was moved by USEPA from the being addressed list back to the 303(d) list pending completion and USEPA approval of a TMDL.
CAR404234	4	Los Angeles	R	Rivers/Streams	Medea Creek Reach 2 (Abv Confl. with Lindero	40423000	5.41	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR404244	4	Los Angeles	R	Rivers/Streams	Triunfo Canyon Creek Reach 1	40424000	2.51	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR404244	4	Los Angeles	R	Rivers/Streams	Triunfo Canyon Creek Reach 2	40424000	3.32	M	Miles	1100	Sedimentation/Siltation	9000	Source Unknown	2019	
CAR526415	5	Central Valley	R	Rivers/Streams	Fall River (Pit)	52641031	8.61219	M	Miles	1100	Sedimentation/Siltation	2105	Historical Land Management Activities	2016	The sedimentation is accumulated sand size sediment in the upper Fall River. The historic land management activities include logging, grazing, channelization, roads, and railroads.
CAR517325	5	Central Valley	R	Rivers/Streams	Humbug Creek	51732030	2.20272	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2012	All resource extraction sources are abandoned mine
CAR559115	5	Central Valley	R	Rivers/Streams	Panoche Creek (Silver Creek to Belmont Avenue)	55112000	17.6357	M	Miles	1100	Sedimentation/Siltation	1000	Agriculture	2007	
CAR559115	5	Central Valley	R	Rivers/Streams	Panoche Creek (Silver Creek to Belmont Avenue)	55112000	17.6357	M	Miles	1100	Sedimentation/Siltation	1935	Agriculture-grazing	2007	

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAR55911 5		Central Valley	R	Rivers/Streams	Panoche Creek (Silver Creek to Belmont Avenue)	55112000	17.6357	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2007	
CAL63030(6		Lahontan	L	Lakes/Reservoirs	Bridgeport Reservoi	63030050	2614.34	A	Acres	1100	Sedimentation/Siltation	1350	Grazing-Related Sources	2006	
CAL63030(6		Lahontan	L	Lakes/Reservoirs	Bridgeport Reservoi	63030050	2614.34	A	Acres	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2006	
CAL63030(6		Lahontan	L	Lakes/Reservoirs	Bridgeport Reservoi	63030050	2614.34	A	Acres	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2006	
CAL63030(6		Lahontan	L	Lakes/Reservoirs	Bridgeport Reservoi	63030050	2614.34	A	Acres	1100	Sedimentation/Siltation	8540	Sediment Resuspension	2006	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	1350	Grazing-Related Sources	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	2000	Silviculture	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	3200	Land Development	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	4300	Other Urban Runoff	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	4500	Highway/Road/Bridge Runoff	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	4600	Urban Runoff--Erosion and Sedimentation	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7000	Hydromodification	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7100	Channelization	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7600	Removal of Riparian Vegetation	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7810	Channel Erosion	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	8100	Atmospheric Deposition	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	8540	Sediment Resuspension	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	8600	Natural Sources	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	8700	Recreational and Tourism Activities (non-boating)	2007	
CAL63430(6		Lahontan	L	Lakes/Reservoirs	Tahoe, Lake	63430010	85364.1	A	Acres	1100	Sedimentation/Siltation	9100	Nonpoint Source	2007	
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	4501	Surface Runoff	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	5000	Resource Extraction	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	8100	Atmospheric Deposition	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	8700	Recreational and Tourism Activities (non-boating)	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63420 6		Lahontan	R	Rivers/Streams	Blackwood Creek	63420021	5.87001	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2008	Creek affected by past gravel quarry operations and other watershed disturbance including grazing and timber harv
CAR63520 6		Lahontan	R	Rivers/Streams	Bronco Creek	63520053	1.34403	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2006	Watershed disturbance in naturally highly erosive watershe
CAR63520 6		Lahontan	R	Rivers/Streams	Bronco Creek	63520053	1.34403	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2006	Watershed disturbance in naturally highly erosive watershe
CAR63520 6		Lahontan	R	Rivers/Streams	Bronco Creek	63520053	1.34403	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2006	Watershed disturbance in naturally highly erosive watershe
CAR63040 6		Lahontan	R	Rivers/Streams	Clearwater Creek	63040051	12.4874	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2006	Listed on basis of limited information; additional monitoring may support delisti
CAR63040 6		Lahontan	R	Rivers/Streams	Clearwater Creek	63040051	12.4874	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2006	Listed on basis of limited information; additional monitoring may support delisti
CAR63040 6		Lahontan	R	Rivers/Streams	Clearwater Creek	63040051	12.4874	M	Miles	1100	Sedimentation/Siltation	8300	Highway Maintenance and Runoff	2006	Listed on basis of limited information; additional monitoring may support delisti
CAR63010 6		Lahontan	R	Rivers/Streams	East Walker River, below Bridgeport Reservo	63030050	8.00973	M	Miles	1100	Sedimentation/Siltation	1350	Grazing-Related Sources	2019	
CAR63010 6		Lahontan	R	Rivers/Streams	East Walker River, below Bridgeport Reservo	63030050	8.00973	M	Miles	1100	Sedimentation/Siltation	4500	Highway/Road/Bridge Runoff	2019	
CAR63010 6		Lahontan	R	Rivers/Streams	East Walker River, below Bridgeport Reservo	63030050	8.00973	M	Miles	1100	Sedimentation/Siltation	4600	Urban Runoff--Erosion and Sedimentation	2019	
CAR63010 6		Lahontan	R	Rivers/Streams	East Walker River, below Bridgeport Reservo	63030050	8.00973	M	Miles	1100	Sedimentation/Siltation	7350	Upstream Impoundment	2019	
CAR63010 6		Lahontan	R	Rivers/Streams	East Walker River, below Bridgeport Reservo	63030050	8.00973	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2019	
CAR63520 6		Lahontan	R	Rivers/Streams	Gray Creek (Nevada County	63520052	2.8033	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2006	Sediment from disturbance of naturally highly erosive watershe
CAR63520 6		Lahontan	R	Rivers/Streams	Gray Creek (Nevada County	63520052	2.8033	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2006	Sediment from disturbance of naturally highly erosive watershe
CAR63520 6		Lahontan	R	Rivers/Streams	Gray Creek (Nevada County	63520052	2.8033	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2006	Sediment from disturbance of naturally highly erosive watershe
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2019	
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2019	
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2019	
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	7550	Habitat Modification	2019	
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	8700	Recreational and Tourism Activities (non-boating)	2019	
CAR63410 6		Lahontan	R	Rivers/Streams	Heavenly Valley Creek (USFS boundary to Trout Creek)	63410031	1.44732	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAR63030 6		Lahontan	R	Rivers/Streams	Hot Springs Canyon Creek	63030042	2.8612	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2008	Listed on basis of limited data; further monitoring may support delistir
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	4300	Other Urban Runoff	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	7000	Hydromodification	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	7800	Drainage/Filling Of Wetlands	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	8300	Highway Maintenance and Runoff	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	8700	Recreational and Tourism Activities (non-boating)	2006	
CAR63520 6		Lahontan	R	Rivers/Streams	Squaw Creek	63520011	5.8	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2006	
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	3000	Construction/Land Development	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	3100	Highway/Road/Bridge Construction	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	7700	Streambank Modification/Destabilization	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	7820	Erosion/Siltation	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	8600	Natural Sources	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	8700	Recreational and Tourism Activities (non-boating)	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	8710	Snow skiing activities	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63510 6		Lahontan	R	Rivers/Streams	Truckee River	63510010	39.1307	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2006	Watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management; highly erosive subwatersh
CAR63420 6		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2008	
CAR63420 6		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	3200	Land Development	2008	
CAR63420 6		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	4000	Urban Runoff/Storm Sewers	2008	

WBID	REGION NUMBER	REGION NAME	WATER BODY TYPE ABBR	WATER BODY TYPE	WATER BODY NAME	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT ABBR	UNIT	POLLUTANT CODE	POLLUTANT	SOURCE CODE	POTENTIAL SOURCES	PROPOSED TMDL COMPLETION	COMMENTS
CAR634206		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	4500	Highway/Road/Bridge Runoff	2008	
CAR634206		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	7810	Channel Erosion	2008	
CAR634206		Lahontan	R	Rivers/Streams	Ward Creek	63420020	5.675	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2008	
CAR632106		Lahontan	R	Rivers/Streams	Wolf Creek (Alpine County)	63210031	11.8207	M	Miles	1100	Sedimentation/Siltation	1500	Range Grazing-Riparian and/or Upland	2019	
CAR632106		Lahontan	R	Rivers/Streams	Wolf Creek (Alpine County)	63210031	11.8207	M	Miles	1100	Sedimentation/Siltation	2000	Silviculture	2019	
CAR632106		Lahontan	R	Rivers/Streams	Wolf Creek (Alpine County)	63210031	11.8207	M	Miles	1100	Sedimentation/Siltation	9100	Nonpoint Source	2019	
CAL801718		Santa Ana	L	Lakes/Reservoirs	Big Bear Lake	80171000	2865.01	A	Acres	1100	Sedimentation/Siltation	3000	Construction/Land Development	2006	
CAL801718		Santa Ana	L	Lakes/Reservoirs	Big Bear Lake	80171000	2865.01	A	Acres	1100	Sedimentation/Siltation	8710	Snow skiing activities	2006	
CAL801718		Santa Ana	L	Lakes/Reservoirs	Big Bear Lake	80171000	2865.01	A	Acres	1100	Sedimentation/Siltation	9105	Unknown Nonpoint Source	2006	
CAR801718		Santa Ana	R	Rivers/Streams	Rathbone (Rathbun) Creek	80171000	4.68	M	Miles	1100	Sedimentation/Siltation	8710	Snow skiing activities	2006	
CAR801718		Santa Ana	R	Rivers/Streams	Rathbone (Rathbun) Creek	80171000	4.68	M	Miles	1100	Sedimentation/Siltation	9105	Unknown Nonpoint Source	2006	
CAE904319		San Diego	E	Estuaries	Agua Hedionda Lagoon	90431000	6.83187	A	Acres	1100	Sedimentation/Siltation	9201	Nonpoint/Point Source	2019	
CAE904219		San Diego	E	Estuaries	Buena Vista Lagoon	90421000	202.298	A	Acres	1100	Sedimentation/Siltation	9201	Nonpoint/Point Source	2019	
CAE906109		San Diego	E	Estuaries	Los Penasquitos Lagoon	90610000	468.918	A	Acres	1100	Sedimentation/Siltation	9201	Nonpoint/Point Source	2019	
CAE904619		San Diego	E	Estuaries	San Elijo Lagoon	90461000	565.804	A	Acres	1100	Sedimentation/Siltation	9201	Nonpoint/Point Source	2019	Estimated size of impairment is 150 acres

Post-Construction Water Balance Calculator

User may make changes from any cell that is orange or brown in color (similar to the cells to the immediate right). Cells in green are calculated for you.

(Step 1a) If you know the 85th percentile storm event for your location enter it in the box below	
(Step 1b) If you can not answer 1a then select the county where the project is located (click on the cell to the right for drop-down): This will determine the average 85th percentile 24 hr. storm event for your site, which will appear under precipitation to left.	*SACRAMENTO*
(Step 1c) If you would like a more percise value select the location closest to your site. If you do not recgonize any of these locations, leave this drop-down menu at location. The average value for the County will be used.	**SACRAMENTO FAA ARPT**

Project Information	
Project Name:	*Optional*
Waste Discharge Identification (WDID):	*Optional*
Date:	*Optional*
Sub Drainage Area Name (from map):	*Optional*

Runoff Calculations		
(Step 2) Indicate the Soil Type (dropdown menu to right):	*Group C Soils*	**Low infiltration. Sandy clay loam. Infiltration rate 0.05 to 0.15 inch/hr when wet.**
(Step 3) Indicate the existing **dominant** non-built land Use Type (dropdown menu to right):	*Wood & Grass: <50% ground cover*	
(Step 4) Indicate the proposed **dominant** non-built land Use Type (dropdown menu to right):	*Lawn, Grass, or Pasture covering more than 75% of the open space*	

Runoff Curve Numbers	
Existing Pervious Runoff Curve Number	**82**
Proposed Development Pervious Runoff Curve Number	**74**

	Complete Either		
	Sq Ft	**Acres**	**Acres**
(Step 5) Total Project Site Area:		5.00	5.00
(Step 6) Sub-watershed Area:		5.00	5.00
Percent of total project :			100%

Design Storm		
Based on the County you indicated above, we have included the 85 percentile average 24 hr event - P85 (in)^ for your area.	**0.62**	**in**
The Amount of rainfall needed for runoff to occur (Existing runoff curve number -P from existing RCN (in)^)	**0.44**	**In**
P used for calculations (in) (the greater of the above two criteria)	**0.62**	**In**
^Available at www.cabmphandbooks.com		

(Step 7) Sub-watershed Conditions	**Complete Either**		**Calculated Acres**
Sub-watershed Area (acres)	**Sq Ft**	**Acres**	**5.00**
Existing Rooftop Impervious Coverage		**0**	**0.00**
Existing Non-Rooftop Impervious Coverage		**0**	**0.00**
Proposed Rooftop Impervious Coverage		**0**	**0.00**
Proposed Non-Rooftop Impervious Coverage		**0**	**0.00**

Credits	**Acres**	**Square Feet**
Porous Pavement	**0.00**	**0**
Tree Planting	**0.00**	**0**
Downspout Disconnection	**0.00**	**0**
Impervious Area Disconnection	**0.00**	**0**
Green Roof	**0.00**	**0**
Stream Buffer	**0.00**	**0**
Vegetated Swales	**0.00**	**0**
Subtotal	**0.00**	**0**
Subtotal Runoff Volume Reduction Credit	**0 Cu. Ft.**	

Pre-Project Runoff Volume (cu ft)	**247**	**Cu.Ft.**
Project-Related Runoff Volume Increase w/o credits (cu ft)	**0**	**Cu.Ft.**
Project-Related Volume Increase with Credits (cu ft)	**0**	**Cu.Ft.**

You have achieved your minimum requirements

(Step 9) Impervious Volume Reduction Credits	**Volume (cubic feet)**
Rain Barrels/Cisterns	**0 Cu. Ft.**
Soil Quality	**0 Cu. Ft.**
Subtotal Runoff Volume Reduction	**0 Cu. Ft.**
Total Runoff Volume Reduction Credit	**0 Cu. Ft.**

Porous Pavement Credit Worksheet

Please fill out a porous pavement credit worksheet for each project sub-watershed.

For the PROPOSED Development:

Proposed Porous Pavement	Runoff Reduction*	Fill in either Acres or SqFt		Equivalent Acres
		In SqFt.	In Acres	
Area of **Brick without Grout** on less than 12 inches of base with at least 20% void space over soil	0.45			0.00
Area of **Brick without Grout** on more than 12 inches of base with at least 20% void space over soil	0.90			0.00
Area of **Cobbles** less than 12 inches deep and over soil	0.30			0.00
Area of **Cobbles** less than 12 inches deep and over soil	0.60			0.00
Area of **Reinforced Grass Pavement** on less than 12 inches of base with at least 20% void space over soil	0.45			0.00
Area of **Reinforced Grass Pavement** on at least 12 inches of base with at least 20% void space over soil	0.90			0.00
Area of **Porous Gravel Pavement** on less than 12 inches of base with at least 20% void space over soil	0.38			0.00
Area of **Porous Gravel Pavement** on at least 12 inches of base with at least 20% void space over soil	0.75			0.00
Area of **Poured Porous Concrete or Asphalt Pavement** with less than 4 inches of gravel base (washed stone)	0.40			0.00
Area of **Poured Porous Concrete or Asphalt Pavement** with 4 to 8 inches of gravel base (washed stone)	0.60			0.00
Area of **Poured Porous Concrete or Asphalt Pavement** with 8 to 12 inches of gravel base (washed stone)	0.80			0.00
Area of **Poured Porous Concrete or Asphalt Pavement** with 12 or more inches of gravel base (washed stone)	1.00			0.00

*=1-Rv**

Return to Calculator

**Using Site Design Techniques to meet Development Standards for Stormwater Quality (BASMAA 2003)

**NCDENR Stormwater BMP Manual (2007)

Tree Planting Credit Worksheet

Please fill out a tree canopy credit worksheet for each project sub-watershed.

Tree Canopy Credit Criteria	Number of Trees Planted	Credit (acres)
Number of proposed evergreen trees to be planted (credit = number of trees x 0.005)*	0	0.00
Number of proposed deciduous trees to be planted (credit = number of trees x 0.0025)*		0.00
	Square feet Under Canopy	
Square feet under an existing tree canopy, that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is LESS than 12 in diameter.		0.00
Square feet under an existing tree canopy that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is 12 in diameter or GREATER.		0.00
Please describe below how the project will ensure that these trees will be maintained.		

0

Return to Calculator

* credit amount based on credits from Stormwater Quality Design Manual for the Sacramento and South Placer Regions

Downspout Disconnection Credit Worksheet

Please fill out a downspout disconnection credit worksheet for each project subwatershed. If you answer yes to all questions, all rooftop area draining to each downspout will be subtracted from your proposed rooftop impervious coverage.

Downspout Disconnection Credit Criteria		
Do downspouts and any extensions extend at least six feet from a basement and two feet from a crawl space or concrete slab?	○ Yes	◉ No
Is the area of rooftop connecting to each disconnected downspout 600 square feet or less?	○ Yes	◉ No
Is the roof runoff from the design storm event fully contained in a raised bed or planter box or does it drain as sheet flow to a landscaped area large enough to contain the roof runoff from the design storm event?	○ Yes	◉ No
The Stream Buffer and/or Vegetated Swale credits **will not** be taken in this sub-watershed area?	○ Yes	◉ No

Percentage of existing	0.00	Acres	of rooftop surface has disconnected downspouts	
Percentage of the proposed	0.00	Acres	of rooftop surface has disconnected downspouts	50

Return to Calculator

Impervious Area Disconnection Credit Worksheet

Please fill out an impervious area disconnection credit worksheet for each project sub-watershed. If you answer yes to all questions, all non-rooftop impervious surface area will be subtracted from your proposed non-rooftop impervious coverage.

Non-Rooftop Disconnection Credit Criteria	Response
Is the maximum contributing impervious flow path length less than 75 feet or, if equal or greater than 75 feet, is a storage device (e.g. French drain, bioretention area, gravel trench) implemented to achieve the required disconnection length?	◉ Yes ○ No
Is the impervious area to any one discharge location less than 5,000 square feet?	◉ Yes ○ No
The Stream Buffer credit **will not** be taken in this sub-watershed area?	◉ Yes ○ No

Percentage of existing	0.00	Acres non-rooftop surface area disconnected	
Percentage of the proposed	0.00	Acres non-rooftop surface area disconnected	70

Return to Calculator

Green Roof Credit Worksheet

Please fill out a greenroof credit worksheet for each project sub-watershed. If you answer yes to all questions, 70% of the greenroof area will be subtracted from your proposed rooftop impervious coverage.

Green Roof Credit Criteria				Response
Is the roof slope less than 15% or does it have a grid to hold the substrate in place until it forms a thick vegetation mat?				◉ Yes ○ No
Has a professional engineer assessed the necessary load reserves and designed a roof structure to meet state and local codes?				◉ Yes ○ No
Is the irrigation needed for plant establishment and/or to sustain the green roof during extended dry periods, is the source from stored, recycled, reclaimed, or reused water?				◉ Yes ○ No
Percentage of existing	0.00	Acres	rooftop surface area in greenroof	
Percentage of the proposed	0.00	Acres	rooftop surface area in greenroof	

Return to Calculator

Stream Buffer Credit Worksheet

Please fill out a stream buffer credit worksheet for each project sub-watershed. If you answer yes to all questions, you may subtract all impervious surface draining to each stream buffer that has not been addressed using the Downspout and/or Impervious Area Disconnection credits.

Stream Buffer Credit Criteria				Response
Does runoff enter the floodprone width* or within 500 feet (whichever is larger) of a stream channel as sheet flow**?				○ Yes ◉ No
Is the contributing overland slope 5% or less, or if greater than 5%, is a level spreader used?				○ Yes ◉ No
Is the buffer area protected from vehicle or other traffic barriers to reduce compaction?				○ Yes ◉ No
Will the stream buffer be maintained in an ungraded and uncompacted condition and will the vegetation be maintained in a natural condition?				○ Yes ◉ No
Percentage of existing	0.00	Acres	impervious surface area draining into a stream buffer:	
Percentage of the proposed	0.00	Acres	impervious surface area that will drain into a stream buffer:	
Please describe below how the project will ensure that the buffer areas will remain in ungraded and uncompacted condition and that the vegetation will be maintained in a natural condition.				

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* floodprone width is the width at twice the bankfull depth.
** the maximum contributing length shall be 75 feet for impervious area

Vegetated Swale Credit Worksheet

Please fill out a vegetated swale worksheet for each project subwatershed. If you answer yes to all questions, you may subtract all impervious surface draining to each stream buffer that has not been addressed using the Downspout Disconnection credit.

Vegetated Swale Credit Criteria

Have all vegetated swales been designed in accordance with Treatment Control BMP 30 (TC-30 - Vegetated Swale) from the California Stormwater BMP Handbook, New Development and Redevelopment (available at www.cabmphandbooks.com)?	○ Yes ◉ No
Is the maximum flow velocity for runoff from the design storm event less than or equal to 1.0 foot per second?	○ Yes ◉ No

Percentage of existing	0.00	Acres of impervious area draining to a vegetated swale	
Percentage of the proposed	0.00	Acres of impervious area draining to a vegetated swale	

Return to Calculator

Rain Barrel/Cistern Credit Worksheet

Please fill out a rain barrel/cistern worksheet for each project sub-watershed.

Rain Barrel/Cistern Credit Criteria	Response
Total number of rain barrel(s)/cisterns	
Average capacity of rain barrel(s)/cistern(s) (in gallons)	
Total capacity rain barrel(s)/cistern(s) (in cu ft) [1]	0

[1] accounts for 10% loss

Return to Calculator

Please fill out a soil quality worksheet for each project sub-watershed.

	Response
Will the landscaped area be lined with an impervious membrane?	
Will the soils used for landscaping meet the ideal bulk densities listed in Table 1 below? [1]	○ Yes ◉ No
If you answered yes to the question above, and you know the area-weighted bulk density within the top 12 inches for soils used for landscaping (in g/cm^3)* , fill in the cell to the right and skip to cell G11. If not select from the drop-down menu in G10.	1.3
If you answered yes to the question above, but you do not know the exact bulk density, which of the soil types in the drop down menu to the right best describes the top 12 inches for soils used for landscaping (in g/cm^3).	Sandy loams, loams
What is the average depth of your landscaped soil media meeting the above criteria (inches)?	12
What is the total area of the landscaped areas meeting the above criteria (in acres)?	2.97

Return to Calculator

Table 1

Sands, loamy sands	<1.6
Sandy loams, loams	<1.4
Sandy clay loams, loams, clay loams	<1.4
Silts, silt loams	<1.3
Silt loams, silty clay loams	<1.1
Sandy clays, silty clays, some clay loams (35-45% clay)	<1.1
Clays (>45% clay)	<1.1

Porosity (%) 50.94%

Mineral grains in many soils are mainly quartz and feldspar, so 2.65 a good average for particle density. To determine percent porosity, use the formula: Porosity (%) = (1-Bulk Density/2.65) X 100

[1] USDA NRCS. "Soil Quality Urban Technical Note No.2-Urban Soil Compaction". March 2000. http://soils.usda.gov/sqi/management/files/sq_utn_2.pdf

* To determine how to calculate density see: http://www.globe.gov/tctg/bulkden.pdf?sectionID=94

APPENDIX 2:
Post-Construction Water Balance Performance Standard Spreadsheet

The discharger shall submit with their Notice of Intent (NOI) the following information to demonstrate compliance with the New and Re-Development Water Balance Performance Standard.

Map Instructions

The discharger must submit a small-scale topographic map of the site to show the existing contour elevations, pre- and post-construction drainage divides, and the total length of stream in each watershed area. Recommended scales include 1 in. = 20 ft., 1 in. = 30 ft., 1 in. = 40 ft., or 1 in = 50 ft. The suggested contour interval is usually 1 to 5 feet, depending upon the slope of the terrain. The contour interval may be increased on steep slopes. Other contour intervals and scales may be appropriate given the magnitude of land disturbance.

Spreadsheet Instructions

The intent of the spreadsheet is to help dischargers calculate the project-related increase in runoff volume and select impervious area and runoff reduction credits to reduce the project-related increase in runoff volume to pre-project levels.

The discharger has the option of using the spreadsheet (**Appendix 2.1)** or a more sophisticated, watershed process-based model (e.g. Storm Water Management Model, Hydrological Simulation Program Fortran) to determine the project-related increase in runoff volume.

In* Appendix 4.1**, ***you must complete the worksheet for each land use/soil type combination for each project sub-watershed.

Steps 1 through 9 pertain specifically to the Runoff Volume Calculator:

Step 1: Enter the county where the project is located in cell H3.

Step 2: Enter the soil type in cell H6.

Step 3: Enter the existing pervious (dominant) land use type in cell H7.

Step 4: Enter the proposed pervious (dominant) land use type in cell H8.

Step 5: Enter the total project site area in cell H11 or J11.

Step 6: Enter the sub-watershed area in cell H12 or J12.

Step 7: Enter the existing rooftop area in cell H17 or J17, the existing non-rooftop impervious area in cell H18 or J18, the proposed rooftop area in cell H19 or J19, and the proposed non-rooftop impervious area in cell H20 or J20

Step 8: Work through each of the impervious area reduction credits and claim credits where applicable. Volume that cannot be addressed using non-structural practices must be captured in structural practices and approved by the Regional Water Board.

Step 9: Work through each of the impervious volume reduction credits and claim credits where applicable. Volume that cannot be addressed using non-structural practices must be captured in structural practices and approved by the Regional Water Board.

Non-structural Practices Available for Crediting

- ***Porous Pavement***
- ***Tree Planting***
- ***Downspout Disconnection***
- ***Impervious Area Disconnection***
- ***Green Roof***
- ***Stream Buffer***
- ***Vegetated Swales***
- ***Rain Barrels and Cisterns***
- ***Landscaping Soil Quality***

APPENDIX 3
Bioassessment Monitoring Guidelines

Bioassessment monitoring is required for projects that meet all of the following criteria:

1. The project is rated Risk Level 3 or LUP Type 3
2. The project directly discharges runoff to a freshwater wadeable stream (or streams) that is either: (a) listed by the State Water Board or USEPA as impaired due to sediment, and/or (b) tributary to any downstream water body that is listed for sediment; and/or have the beneficial use SPAWN & COLD & MIGRATORY
3. Total project-related ground disturbance exceeds 30 acres.

For all such projects, the discharger shall conduct bioassessment monitoring, as described in this section, to assess the effect of the project on the biological integrity of receiving waters.
Bioassessment shall include:

1. The collection and reporting of specified instream biological data
2. The collection and reporting of specified instream physical habitat data

<u>Bioassessment Exception</u>
If a site qualifies for bioassessment, but construction commences out of an index period for the site location, the discharger shall:

1. Receive Regional Water Board approval for the sampling exception
2. Make a check payable to: Cal State Chico Foundation (SWAMP Bank Account) or San Jose State Foundation (SWAMP Bank Account) and include the WDID# on the check for the amount calculated for the exempted project.
3. Send a copy of the check to the Regional Water Board office for the site's region
4. Invest **7,500.00 X The number of samples required** into the SWAMP program as compensation (upon Regional Water Board approval).
5. Conduct bioassessment monitoring, as described in Appendix 4
6. Include the collection and reporting of specified instream biological data and physical habitat
7. Use the bioassessment sample collection and Quality Assurance & Quality Control (QA/QC) protocols developed by the State of California's Surface Water Ambient Monitoring Program (SWAMP)

<u>Site Locations and Frequency</u>
Macroinvertebrate samples shall be collected both before ground disturbance is initiated and after the project is completed. The "after" sample(s) shall be collected after at least one winter season resulting in surface runoff has transpired after project-related ground disturbance has ceased. "Before" and "after" samples shall be collected both upstream and downstream of the project's

discharge. Upstream samples should be taken immediately before the sites outfall and downstream samples should be taken immediately after the outfall (when safe to collect the samples). Samples should be collected for each freshwater wadeable stream that is listed as impaired due to sediment, or tributary to a water body that is listed for sediment. Habitat assessment data shall be collected concurrently with all required macroinvertebrate samples.

Index Period (Timing of Sample Collection)
Macroinvertebrate sampling shall be conducted during the time of year (i.e., the "index period") most appropriate for bioassessment sampling, depending on ecoregion. This map is posted on the State Water Board's Website: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

Field Methods for Macroinvertebrate Collections
In collecting macroinvertebrate samples, the discharger shall use the "Reachwide Benthos (Multi-habitat) Procedure" specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California* (Ode 2007).[1]

Physical - Habitat Assessment Methods
The discharger shall conduct, concurrently with all required macroinvertebrate collections, the "Full" suite of physical habitat characterization measurements as specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California* (Ode 2007), and as summarized in the Surface Water Ambient Monitoring Program's *Stream Habitat Characterization Form — Full Version*.

Laboratory Methods
Macroinvertebrates shall be identified and classified according to the Standard Taxonomic Effort (STE) Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT),[2] and using a fixed-count of 600 organisms per sample.

Quality Assurance
The discharger or its consultant(s) shall have and follow a quality assurance (QA) plan that covers the required bioassessment monitoring. The QA plan shall include, or be supplemented to include, a specific requirement for external QA checks (i.e., verification of taxonomic identifications and correction of data where errors are identified). External QA checks shall be performed on one of the

[1] This document is available on the Internet at: http://www.swrcb.ca.gov/swamp/docs/phab_sopr6.pdf.
[2] The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

discharger's macroinvertebrate samples collected per calendar year, or ten percent of the samples per year (whichever is greater). QA samples shall be randomly selected. The external QA checks shall be paid for by the discharger, and performed by the California Department of Fish and Game's Aquatic Bioassessment Laboratory. An alternate laboratory with equivalent or better expertise and performance may be used if approved in writing by State Water Board staff.

Sample Preservation and Archiving

The original sample material shall be stored in 70 percent ethanol and retained by the discharger until: 1) all QA analyses specified herein and in the relevant QA plan are completed; and 2) any data corrections and/or re-analyses recommended by the external QA laboratory have been implemented. The remaining subsampled material shall be stored in 70 percent ethanol and retained until completeness checks have been performed according to the relevant QA plan. The identified organisms shall be stored in 70 percent ethanol, in separate glass vials for each final ID taxon. (For example, a sample with 45 identified taxa would be archived in a minimum of 45 vials, each containing all individuals of the identified taxon.) Each of the vials containing identified organisms shall be labeled with taxonomic information (i.e., taxon name, organism count) and collection information (i.e., site name/site code, waterbody name, date collected, method of collection). The identified organisms shall be archived (i.e., retained) by the discharger for a period of not less than three years from the date that all QA steps are completed, and shall be checked at least once per year and "topped off" with ethanol to prevent desiccation. The identified organisms shall be relinquished to the State Water Board upon request by any State Water Board staff.

Data Submittal

The macroinvertebrate results (i.e., taxonomic identifications consistent with the specified SAFIT STEs, and number of organisms within each taxa) shall be submitted to the State Water Board in electronic format. The State Water Board's Surface Water Ambient Monitoring Program (SWAMP) is currently developing standardized formats for reporting bioassessment data. All bioassessment data collected after those formats become available shall be submitted using the SWAMP formats. Until those formats are available, the biological data shall be submitted in MS-Excel (or equivalent) format.[3]

The physical/habitat data shall be reported using the standard format titled *SWAMP Stream Habitat Characterization Form — Full Version*.[4]

[3] Any version of Excel, 2000 or later, may be used.
[4] Available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/fieldforms_fullversion052908.pdf

Invasive Species Prevention

In conducting the required bioassessment monitoring, the discharger and its consultants shall take precautions to prevent the introduction or spread of aquatic invasive species. At minimum, the discharger and its consultants shall follow the recommendations of the California Department of Fish and Game to minimize the introduction or spread of the New Zealand mudsnail.[5]

[5] Instructions for controlling the spread of NZ mudsnails, including decontamination methods, can be found at: http://www.dfg.ca.gov/invasives/mudsnail/
More information on AIS More information on AIS
http://www.waterboards.ca.gov/water_issues/programs/swamp/ais/

Appendix 4 Sediment TMDLs

Implemented Sediment TMDLs in California. Construction was listed as a source in all fo these TMDLs in relation to road construction. Although construction was mentioned as a source, it was not given a specific allocation amount. The closest allocation amount would be for the road activity management WLA. **Implementation Phase** – Adoption process by the Regional Board, the State Water Resources Control Board, the Office of Administrative Law, and the US Environmental Protection Agency completed and TMDL being implemented.

A. Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi^2 yr
1 R1.epa.albionfinaltmdl	R	Albion River	Sedimentation	Road Construction	2001	43 acres	See A (table 6)

B Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi^2 yr
1 R1.epa.EelR-middle.mainSed.temp	R	Middle Main Eel River and Tributaries (from Dos Rios to the South Fork)	Sedimentation Road	Construction	2005-2006 521	mi^2	100

C Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi^2 yr
1 R1.epa.EelRsouth.sed.temp	R	South Fork Eel River	Sedimentation	Road Construction	12 1999	See chart	473

D Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi^2 yr
1 R1.epa.bigfinaltmdl	R Big	River	Sedimentation	Road Construction	12 2001	181 mi^2 watershed drainage	TMDL = loading capacity = nonpoint sources + background =

							393 t mi2 yr

E Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres**	**WLA** tons mi^2 yr
1 R1.epa.EelR-lower.Sed.temp-121807-signed	R	Lower Eel River	Sedimentation	Road Construction	12 2007	300 square-mile watershed	898

F Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres**	**WLA** tons mi^2 yr
1 R1.epa.EelR-middle.Sed.temp-	R	Middle Fork Eel River	Sedimentation	Road Construction	12 2003	753 mi^2 (approx. 482,000 acres)	82

G Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** Mi^2	**WLA** tons mi^2 yr
1 R1.epa.EelRnorth-Sed.temp.final-121807-signed	R	North Fork Eel River	Sedimentation	Road Construction	12 30 2002	289 (180,020 acres)	20

H Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** Mi^2	**WLA** tons mi^2 yr
1 R1.epa.EelR-upper.mainSed.temp-	R	Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury)	Sedimentation	Road Construction	12 29 2004	688 (approx. 440,384 acres)	14

I Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres	WLA tons mi^2 yr
1 R1.epa.gualalafinaltmdl	R	Gualala River	Sedimentation	Road Construction	Not sure	300 (191,145 acres)	7

J Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi^2	WLA tons mi^2 yr
1 R1.epa.Mad-sed.turbidity	R	Mad River	Sedimentation	Road Construction	12 21 2007	480	174

K Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi^2	WLA tons mi^2 yr
1 R1.epa.mattole.sediment	R	Mattole River	Sedimentation	Road Construction	12 30 2003	296	27 or 520+27 = 547

L Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi^2	WLA tons mi^2 yr
1 R1.epa.navarro.sed.temp	R	Navarro River	Sedimentation	Road Construction	Not sure	315 (201,600 acres).	50

M Region	Type	Name	Pollutant Stressor	Potential Sources	TMDL Completion Date	Watershed Acres mi^2	WLA tons mi^2 yr
1 R1.epa.noyo.sediment	R	Noyo River	Sedimentation	Road Construction	12 16 1999	113 (72,323 acres)	68 (three areas measured) Table 16 in the TMDL

N Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA** tons mi^2 yr
1 R1.epa.RedwoodCk.sed	Cr	Redwood Creek	Sedimentation	Road Construction	12 30 1998	278	1900 Total allocation

O Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA – Roads** tons mi^2 yr
1 R1.epa.tenmile.sed	R	Ten Mile River	Sedimentation	Road Construction	2000	120	9

P Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA management** tons mi^2 yr
1 R1.epa.trinity.sed	R	Trinity River	Sedimentation	Road Construction	12 20 2001	2000 of 3000 covered in this TMDL	See rows below
1	Cr	Horse Linto Creek	Sedimentation	Road Construction	12 20 2001	64	528
1	Cr	Mill creek and Tish Tang	Sedimentation	Road Construction	12 20 2001	39	210
1	Cr	Willow Creek	Sedimentation	Road Construction	12 20 2001	43	94
1	Cr	Campbell Creek and Supply Creek	Sedimentation	Road Construction	12 20 2001	11	1961
1	Cr	Lower Mainstem and Coon Creek	Sedimentation	Road Construction	12 20 2001	32	63
1 R		Reference Subwatershed [1]	Sedimentation	Road Construction	12 20 2001	434	24
1	Cr	Canyon Creek	Sedimentation	Road	12 20 2001	64	326

				Construction			
1 R		Upper Tributaries[2]	Sedimentation	Road Construction	12 20 2001	72	67
1 R		Middle Tributaries[3]	Sedimentation	Road Construction	12 20 2001	54	53
1 R		Lower Tributaries[4]	Sedimentation	Road Construction	12 20 2001	96	55
1	Cr	Weaver and Rush Creeks	Sedimentation	Road Construction	12 20 2001	72	169
1 Cr		Deadwood Creek Hoadley Gulch Poker Bar	Sedimentation	Road Construction	12 20 2001	47	68
1	L	Lewiston Lake	Sedimentation	Road Construction	12 20 2001	25	49
1 Cr		Grassvalley Creek	Sedimentation	Road Construction	12 20 2001	37	44
1	Cr	Indian Creek	Sedimentation	Road Construction	12 20 2001	34	81
1	Cr	Reading and Browns Creek	Sedimentation	Road Construction	12 20 2001	104	66
1 Cr		Reference Subwatersheds[5]	Sedimentation	Road Construction	12 20 2001	235	281
1	L, Cr	Westside tributaries[6]	Sedimentation	Road Construction	12 20 2001	93	105
1 R,	Cr, G	Upper trinity[7]	Sedimentation	Road Construction	12 20 2001	161	690
1 R,	Cr, G	East Fork Tributaries[8]	Sedimentation	Road Construction	12 20 2001	115	65
1	R, L	Eastside Tributaries[9]	Sedimentation	Road Construction	12 20 2001	89	60

1 New River, Big French, Manzanita, North Fork, East Fork, North Fork
2 Dutch, Soldier, Oregon gulch, Conner Creek
3 Big Bar, Prairie Creek, Little French Creek
4 Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quimby, Hawkins, Sharber
5 Stuarts Fork, Swift Creek, Coffee Creek
6 Stuart Arm, Stoney Creek, Mule Creek, East Fork, Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek,
7 Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstream, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowslide Gulch, Scorpion Creek
8 East Fork Trinity, Cedar Creek, Squirrel Gulch

9 East Side Tributaries, Trinity Lake

Q Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA** tons mi^2 yr
1 R1.epa.trinity.so.sed	R, Cr	South Fork Trinity River and Hayfork Creek	Sedimentation	Road Construction	12 1998	Not given, 19 miles long	33 (road total)

R Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA** tons mi^2 yr
1 R1.epa.vanduzen.sed	R, Cr	Van Duzen River and Yager Creek	Sedimentation	Various	12 16 1999	429	1353 total allocation
1		Upper Basin	Sedimentation	Road Construction			7
1		Middle Basin	Sedimentation	Road Construction			22
1		Lower Basin	Sedimentation	Road Construction			20

S Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA** tons mi^2 yr
6 R6.blackwood.sed Cr		Blackwood Creek (Placer County)	Bedded Sediment	Various	9 2007	11	17272 total

T Region	**Type**	**Name**	**Pollutant Stressor**	**Potential Sources**	**TMDL Completion Date**	**Watershed Acres** mi^2	**WLA** tons mi^2 yr
6 R6.SquawCk.sed R		Squaw Creek (Placer County)	Sedimentation /controllable sources	Various – basin plan amendment	4 13 2006	8.2	10,900

Adopted TMDLs for Construction Sediment Sources

Region	Type	Name	Pollutant Stressor	Potential Sources	**TMDL Completion Date**	**Watershed Area** mi^2	Waste load Allocation tons mi^2 yr
8 R		Newport Bay San Diego Creek Watershed	Sedimentation	Construction Land Development	1999 2.24	(1432 acres)	125,000 tons per Year (no more than 13,000 tons per year from construction sites)

Appendix 4 Non Sediment TMDLs

Region 1 Lost River-DIN and CBOD

Region 1 Source: Cal Trans Construction TMDL Completion Date: 12 30 2008 TMDL Type: River, Lake Watershed Area= 2996 mi^2	**Pollutant Stressors/WLA**	
	Dissolved inorganic nitrogen (DIN) (metric tons/yr)	**Carbonaceous biochemical oxygen demand (CBOD) (metric tons/yr)**
Lost River from the Oregon border to Tule Lake	.1 .2	
Tule Lake Refuge	.1	.2
Lower Klamath Refuge	.1	.2

Region 2 San Francisco Bay-Mercury

Region 2 Source:Non-Urban Stormwater Runoff TMDL Type: Bay	**Name**	**Pollutant Stressor/WLA**	**TMDL Completion Date**
	San Francisco Bay	Mercury 25 kg/year	08 09 2006

Region 4 Machado Lake Nutrients - Resolution No. 2008-006 (Effective Date - March 11, 2009)

General Construction Stormwater Permit WLAs	Years After Effective Date	Total Phosphorus (mg/L)	Total Nitrogen (TKN + NO3-N + NO2-N) (mg/L)
Interim WLAs[1]	At Effective Date	1.25	3.50
Interim WLAs[2] 5	years	1.25	2.45
Final WLAs[2]	9.5 years	0.10	1.00

[1] The compliance points for effective date interim WLAs are measured in the lake.
[2] No compliance points are specified for general construction stormwater permits for the year 5 interim WLAs and final WLAs

Region 4 Ballona Creek-Metals and Selenium – Resolution No. 2007-015 (Effective Date October 29, 2008)

Wet Weather WLAs

Region 4 Source: NPDES General Construction TMDL Completion Date: 10 29 2008 TMDL Type: Creek	Copper (Cu)		Lead (Pb)		Selenium (Se)		Zinc (Zn)	
	g/day	g/day/acre	g/day	g/day/acre	g/day	g/day/acre	g/day	g/day/acre
Ballona Creek	4.94E-07 x Daily storm volume (L)	2.20E-10 x Daily storm volume (L)	1.62E-06 x Daily storm volume (L)	7.20E-10 x Daily storm volume (L)	1.37E-07 x Daily storm volume (L)	6.10E-11 x Daily storm volume (L)	3.27E-06 x Daily storm volume (L)	1.45E-09 x Daily storm volume (L)

Wet-weather WLA Implementation

- Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the final waste load allocations assigned to construction storm water permittees.
- Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL.
- General construction storm water permittees will be considered in compliance with final waste load allocations if they implement these Regional Board approved BMPs. All permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with final waste load allocations.

Dry-weather WLAs

A waste load allocation of zero is assigned to all general construction storm water permits during dry weather.

Dry-weather WLA Implementation

Non-storm water flows authorized by the General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order No. 99-08 DWQ), or any successor order, are exempt from the dry-weather waste load allocation equal to zero as long as they comply with the provisions of sections C.3 and A.9 of the Order No. 99-08 DWQ, which state that these authorized non-storm discharges shall be:

(1) infeasible to eliminate
(2) comply with BMPs as described in the Storm Water Pollution Prevention Plan prepared by the permittee, and
(3) not cause or contribute to a violation of water quality standards, or comparable provisions in any successor order.
Unauthorized non-storm water flows are already prohibited by Order No. 99-08 DWQ.

Region 4 Los Angeles River and Tributaries-Metals– Resolution No. 2007-014
(Effective Date October 29, 2008)

Wet Weather WLAs

	Cadmium (Cd)		Copper (Cu)		Lead (Pb)		Zinc (Zn)	
	kg/day g/day/acre		kg/day g/day/acre		kg/day g/day/acre		kg/day g/day/acre	
5.9x10	$^{-11}$ x Daily storm volume (L)	$7.6x10^{-12}$ x Daily storm volume (L)	$3.2x10^{-10}$ x Daily storm volume (L)	$4.2x10^{-11}$ x Daily storm volume (L)	$1.2x10^{-9}$ x Daily storm volume (L)	$1.5x10^{-10}$ x Daily storm volume (L)	$3.01x10^{-9}$ x Daily storm volume (L)	$3.9x10^{-10}$ x Daily storm volume (L)

Wet-weather WLA Implementation

- Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the final waste load allocations assigned to construction storm water permittees.
- Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL.
- General construction storm water permittees will be considered in compliance with final waste load allocations if they implement these Regional Board approved BMPs. All permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with final waste load allocations.

Dry-weather WLAs

A waste load allocation of zero is assigned to all general construction storm water permits during dry weather.

Dry-weather WLA Implementation

Non-storm water flows authorized by the General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order No. 99-08 DWQ), or any successor order, are exempt from the dry-weather waste load allocation equal to zero as

long as they comply with the provisions of sections C.3 and A.9 of the Order No. 99-08 DWQ, which state that these authorized non-storm discharges shall be:

(1) infeasible to eliminate
(2) comply with BMPs as described in the Storm Water Pollution Prevention Plan prepared by the permittee, and
(3) not cause or contribute to a violation of water quality standards, or comparable provisions in any successor order.

Unauthorized non-storm water flows are already prohibited by Order No. 99-08 DWQ.

Region 4 Calleguas Creek Metals TMDL – Resolution No. 2006-012
(Effective Date - March 26, 2007)

Interim Limits and Final WLAs for Total Recoverable Copper, Nickel, and Selenium

Interim limits and waste load allocations are applied to receiving water.

A. Interim Limits

Constituents	Calleguas and Conejo Creek			Revolon Slough		
	Dry CMC (ug/L)	Dry CCC (ug/L)	Wet CMC (ug/L)	Dry CMC (ug/L)	Dry CCC (ug/L)	Wet CMC (ug/L)
Copper*	23	19	204	23	19	204
Nickel	15	13	(a)	15	13	(a)
Selenium	(b)	(b)	(b)	14	13	(a)

(a) The current loads do not exceed the TMDL under wet conditions; interim limits are not required.
(b) Selenium allocations have not been developed for this reach as it is not on the 303(d) list.
(c) Attainment of interim limits will be evaluated in consideration of background loading data, if available.

B. Final WLAs for Total Recoverable Copper, Nickel, and Selenium

Dry-Weather WLAs in Water Column

Flow Range	Calleguas and Conejo Creek			Revolon Slough		
	Low Flow	Average Flow	Elevated Flow	Low Flow	Average Flow	Elevated Flow
Copper1 (lbs/day)	0.04*WER - 0.02	0.12*WER - 0.02	0.18*WER - 0.03	0.03*WER - 0.01	0.06*WER - 0.03	0.13*WER - 0.02
Nickel (lbs/day)	0.100	0.120	0.440	0.050	0.069	0.116
Selenium (lbs/day)	(a)	(a)	(a)	0.004	0.003	0.004

[1] If site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading.

(a) Selenium allocations have not been developed for this reach as it is not on the 303(d) list.

Wet-Weather WLAs in Water Column

Constituent	Calleguas Creek	Revolon Slough
Copper[1] (lbs/day)	(0.00054*Q^2*0.032*Q - 0.17)*WER - 0.06	(0.0002*Q2+0.0005*Q)*WER
Nickel[2] (lbs/day)	0.014*Q^2+0.82*Q	0.027*Q^2+0.47*Q
Selenium[2] (lbs/day)	(a)	0.027*Q^2+0.47*Q

[1] If site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading.

[2] Current loads do not exceed loading capacity during wet weather. Sum of all loads cannot exceed loads presented in the table

(a) Selenium allocations have not been developed for this reach as it is not on the 303(d) list.

Q: Daily storm volume.

Interim Limits and Final WLAs for Mercury in Suspended Sediment

Flow Range	Calleguas Creek		Revolon Slough	
	Interim (lbs/yr)	Final (lbs/yr)	Interim (lbs/yr)	Final (lbs/yr)
0-15,000 MGY	3.3	0.4	1.7	0.1
15,000-25,000 MGY	10.5	1.6	4	0.7
Above 25,000 MGY	64.6	9.3	10.2	1.8

MGY: million gallons per year.

In accordance with current practice, a group concentration-based WLA has been developed for all permitted stormwater discharges, including municipal separate storm sewer systems (MS4s), Caltrans, general industrial and construction stormwater permits, and Naval Air Weapons Station Point Mugu. Dischargers will have a required 25%, 50% and 100% reduction in the difference between the current loadings and the load allocations at 5, 10 and 15 years after the effective date, respectively. Achievement of required reductions will be evaluated based on progress towards BMP implementation as outlined in the urban water quality management plans (UWQMPs). If the interim reductions are not met, the dischargers will submit a report to the Executive Officer detailing why the reductions were not met and the steps that will be taken to meet the required reductions.

Region 4 Calleguas Creek-OC Pesticides, PCBs, and Siltation (Resolution 2005-010)
Effective Date - March 24, 2006

Interim Requirements

Region 4 Calleguas Creek	**Pollutant Stressor**	**WLA Daily Max (µg/L)**	**WLA Monthly Ave (µg/L)**
Source: Minor NPDES point sources/WDRs			
TMDL Completion Date: 3 24 2006	Chlordane 1.2		0.59
TMDL Type:Creek	4,4-DDD 1.7		0.84
	4,4-DDE 1.2		0.59
	4,4-DDT 1.2		0.59
	Dieldrin 0.28		0.14
	PCB's 0.34		0.17
	Toxaphene 0.33		0.16

Region 4 Calleguas Creek-Calleguas Creek Toxicicity (Resolution 2005-009)
Effective Date - March 24, 2006

Minor sources include NPDES permittees other than POTWs and MS4s, discharging to the Calleguas Creek Watershed. A wasteload of 1.0 TUc is allocated to the minor point sources discharging to the Calleguas Creek Watershed. Additionally, the following wasteloads for chlorpyrifos and diazinon are established. Final WLAs apply as of March 24, 2006.

Chlorpyrifos WLAs, ug/L
Final WLA
(4 day)
0.014
Diazinon WLAs, ug/L
Final WLA
Acute and Chronic
0.10

Region 4 Calleguas Creek-Salts (Resolution 2007-016)
Effective Date – December 2, 2008

Final Dry Weather Pollutant WLA (mg/L)					
Region 4 Calleaguas Creek Source Permitted Stormwater Dischargers TMDL Completion Date: 12 2 2008 TMDL Type:Creek	**Critical Condition Flow Rate (mgd)**	**Chloride (lb/day)**	**TDS (lb/day)**	**Sulfate (lb/day)**	**Boron (lb/day)**
Simi	1.39	1738 9849 289	7 12		
Las Posas	0.13	157 887 261 N/A			
Conejo	1.26	1576 8931 262	7 N/A		
Camarillo	0.06	72	406 119 N/A		
Pleasant Valley (Calleguas)	0.12	150 850 250 N/A			
Pleasant Valley (Revolon)	0.25	314	1778	523	2
Dry Weather Interim Pollutant WLA (mg/L)					
	Chloride (mg/L)	**TDS (mg/L)**		**Sulfate (mg/L)**	**Boron (mg/L)**

Simi 230.0		1720.0	1289.0	1.3
Las Posas	230	1720	1289	1.3
Conejo 230		1720	1289	1.3
Camarillo 230		1720	1289	1.3
Pleasant Valley (Calleguas)	230	1720	1289	1.3
Pleasant Valley (Revolon)	230	1720	1289	1.3

- Dry- weather waste load allocations apply in the receiving water at the base of each subwatershed. Dry weather allocations apply when instream flow rates are below the 86th percentile flow and there has been no measurable precipitation in the previous 24 hours.
- Because wet weather flows transport a large mass of salts at low concentrations, these dischargers meet water quality objectives during wet weather. No wet weather allocations are assigned.

Ballona Creek Toxic Pollutants (Resolution No. 2005-008)
Effective Date - January 11, 2006

Each storm water permittee enrolled under the general construction or industrial storm water permits will receive an individual waste load allocation on a per acre basis, based on the acreage of their facility.

Metals per Acre WLAs for Individual General Construction or Industrial Storm Water Permittees (g/yr/ac)

Cadmium	Copper	Lead	Silver	Zinc
0.1	3 4 0.1			13

Organics per Acre WLAs for Individual General Construction or Industrial Storm Water Permittees (mg/yr/ac)

Chlordane	DDTs	Total PCBs	Total PAHs
0.04	0.14	2	350

Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed specific general construction storm water permit developed by the Regional Board.

Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the waste load allocations assigned to construction storm water permittees. Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the

effective date of the TMDL. General construction storm water permittees will be considered in compliance with waste load allocations if they implement these Regional Board approved BMPs.

All general construction permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with waste load allocations.

Region 4 Marina Del Rey Harbor Toxic Pollutants TMDL (Resolution No. 2005-012)
Effective Date March 22, 2006

Each storm water permittee enrolled under the general construction or industrial storm water permits will receive an individual waste load allocation on a per acre basis, based on the acreage of their facility.

Metals per Acre WLAs for Individual General Construction or Industrial Storm Water Permittees (g/yr/ac)

Copper	Lead	Zinc
2.3	3.1	10

Organics per acre WLAs for Individual General Construction or Industrial Storm Water Permittees (mg/yr/ac)

Chlordane	Total PCBs
0.03	1.5

Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed specific general construction storm water permit developed by the Regional Board.

Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the waste load allocations assigned to construction storm water permittees. Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL. General construction storm water permittees will be considered in compliance with waste load allocations if they implement these Regional Board approved BMPs.

All general construction permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of

the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with waste load allocations.

Region 4 San Gabriel River and Tributaries-Metals and Selenium (EPA-established TMDL – Effective date: 3/26/07)

Wet-weather allocations

Waterbody	Copper	Lead	Zinc
San Gabriel River Reach 2*		0.8 kg/d	
Coyote Creek**	0.513 kg/d	2.07 kg/d	3.0 kg/d

*Mass-based allocations are based on a flow of 260 cfs (daily storm volume = 6.4×10^8 liters)

**Mass-based allocations are based on a flow of 156 cfs (daily storm volume = 3.8×10^8 liters)

Dry-weather allocations

The dry-weather copper waste load allocation for general construction storm water permittees that discharge to San Gabriel Reach 1, Coyote Creek, and the Estuary is zero.

The dry-weather selenium allocation for general construction storm water permittees that discharge to San Jose Creek Reach 1 and Reach 2 is 5 µg/L (total recoverable metals).

Region 4 Upper Santa Clara River Chloride TMDL Adopted by Resolution No 2006-016 Effective Date June 12, 2008

"Other NPDES dischargers" have a chloride WLA equal to 100 mg/L.

This TMDL was revised by Resolution No 2008-012, which, when it becomes effective, includes the following conditional WLAs for "Other minor NPDES discharges":

Reach	Concentration-based Conditional WLA for Chloride (mg/L)*
6	150 (12-month Average), 230 (Daily Maximum)
5	150 (12-month Average), 230 (Daily Maximum)
4B	117 (3-month Average), 230 (Daily Maximum)

*The conditional WLAs for chloride for all point sources shall apply only when chloride load reductions and/or chloride export projects are in operation by the Santa Clarita Valley Sanitation District according to the implementation plan for the TMDL. If these conditions are not met, WLAs shall be based on existing water quality objectives for chloride of 100 mg/L.

Region 4 The Harbor Beaches of Ventura County-Bacteria (Adopted by Resolution No. 2007-017)
Effective Date – December 18, 2008

Current and future enrollees in the Statewide Construction Activity Storm Water General Permit in the Channel Islands Harbor subwatershed are assigned WLAs of zero (0) days of allowable exceedances of the single sample limits and the rolling 30-day geometric mean limits.

Single Sample Limits are:
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Rolling 30-day Geometric Mean Limits are:
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

Los Angeles Harbor Bacteria TMDL (Adopted by Resolution No. 2004-001)
Effective Date – March 10, 2005

Current and future enrollees in the Statewide Construction Activity Storm Water General Permit in the watershed are assigned WLAs of zero (0) days of allowable exceedances of the single sample limits and the rolling 30-day geometric mean.

Single Sample Limits are:
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Rolling 30-day Geometric Mean Limits are:
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

Ballona Creek Bacteria TMDL (Adopted by Resolution No. 2006-011)
Effective Date – April 27, 2007

Current and future enrollees in the Statewide Construction Activity Storm Water General Permit in the watershed are assigned WLAs of zero (0) days of allowable exceedances of the single sample limits and the rolling 30-day geometric mean.

Single Sample Limits are:
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Rolling 30-day Geometric Mean Limits are:
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

Region 4 Resolution No. 03-009 Los Angeles River and Tributaries-Nutrients

Minor Point Sources
Waste loads are allocated to minor point sources enrolled under NPDES or WDR permits including but not limited to Tapia WRP, Whittier Narrows WRP, Los Angeles Zoo WRP, industrial and construction stormwater, and municipal storm water and urban runoff from municipal separate storm sewer systems (MS4s)

Region 4 Minor Point Sources for NPDES/WDR Permits TMDL Effective Date: 3 23 2004 TMDL Type: River	Pollutant Stressor/WLA				
	Total Ammonia (NH_3)		**Nitrate-nitrogen (NO_3-N)**	**Nitrite-nitrogen (NO_2-N)**	**NO_3-N + NO_3-N**
	1 Hr Ave mg/l	30 Day Ave mg/l	30 Day Ave mg/l		30 Day Ave mg/l
LA River Above Los Angeles-Glendale WRP (LAG)	4.7 1.6 8.0			1.0	8.0
LA River Below LAG	8.7	2.4	8.0	1.0	8.0
Los Angeles Tributaries 10.1		2.3	8.0	1.0	8.0

Malibu Creek Attachment A to Resolution No. 2004-019R-Bacteria

Effective date: 1 24 2006. The WLAs for permittees under the NPDES General Stormwater Construction Permit are zero (0) days of allowable exceedances for the single sample limits and the rolling 30-day geometric mean.

Single Sample Limits are:
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Rolling 30-day Geometric Mean Limits are:
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

Region 4 Marina del Rey Harbor, Mothers' Beach and Back Basins
Attachment A to Resolution No. 2003-012-Bacteria

Effective date: 3 18 2004. Discharges from general construction storm water permits are not expected to be a significant source of bacteria. Therefore, the WLAs for these discharges are zero (0) days of allowable exceedances for the single sample limits and the rolling 30-day geometric mean. Any future enrollees under a general NPDES permit, general industrial storm water permit or general construction storm water permit within the MdR Watershed will also be subject to a WLA of zero days of allowable exceedances.

Single Sample Limits are:
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
d. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.

Rolling 30-day Geometric Mean Limits are:
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

Santa Clara River Nutrients TMDL (Adopted by Resolution No. 2003-011
Effective Date - March 23, 2004

Concentration-based wasteloads are allocated to municipal, industrial and construction stormwater sources regulated under NPDES permits. For stormwater permittees discharging into Reach 7, the thirty-day WLA for ammonia as nitrogen is 1.75 mg/L and the one-hour WLA for ammonia as nitrogen is 5.2 mg/L; the thirty-day average WLA for nitrate plus nitrite as nitrogen is 6.8 mg/L. For stormwater permittees discharging into Reach 3, the thirty-day WLA for ammonia as nitrogen is 2.0 mg/L and the one-hour WLA for ammonia as nitrogen is 4.2 mg/L; the thirty-day average WLA for nitrate plus nitrite nitrogen is 8.1 mg/L.

Region 8 RESOLUTION NO. R8-2007- 0024

Total Maximum Daily Loads (TMDLs) for San Diego Creek,
Upper and Lower Newport Bay, Orange County, California

Region 8 NPDES Construction Permit TMDL Completion Date: 1 24 1995 TMDL Type: River. Cr, Bay	Organochlorine Compounds							
	Total DDT		**Chlordane**		**Total PCBs**		**Toxaphene**	
	g/day	g/yr	g/day	g/yr	g/day	g/yr	g/day	g/yr
San Diego Creek	.27	99.8	**.18***	**64.3***	**.09***	**31.5***	.004 1.5	
Upper Newport Bay	.11	40.3 .06		23.4 .06		23.2	**X**	**X**
Lower Newport Bay	.04	14.9	.02 8.6 .17	60.7			**X**	**X**

*Red= Informational WLA only, not for enforcement purposes

Organochlorine Compounds TMDLs Implementation Tasks and Schedule

Regional Board staff shall develop a SWPPP Improvement Program that identifies the Regional Board's expectations with respect to the content of SWPPPs, including documentation regarding the selection and implementation of BMPs, and a sampling and analysis plan. The Improvement Program shall include specific guidance regarding the development and implementation of monitoring plans, including the constituents to be monitored, sampling frequency and analytical protocols. The SWPPP Improvement Program shall be completed by (*the date of OAL approval of this BPA*). ***No later than two months*** from completion of the Improvement Program, Board staff shall assure that the requirements of the Program are communicated to interested parties, including dischargers with existing authorizations under the General Construction Permit. Existing, authorized dischargers shall revise their project SWPPPs as needed to address the Program requirements as soon as possible but ***no later than (three months of completion of the SWPPP Improvement Program)***. Applicable SWPPPs that do not adequately address the Program requirements shall be considered inadequate and enforcement by the Regional Board shall proceed accordingly. The Caltrans and Orange County MS4 permits shall be revised as needed to assure that the permittees communicate the Regional Board's SWPPP expectations, based on the SWPPP Improvement Program, with the Standard Conditions of Approval.

APPENDIX 5:
Glossary

Active Areas of Construction
All areas subject to land surface disturbance activities related to the project including, but not limited to, project staging areas, immediate access areas and storage areas. All previously active areas are still considered active areas until final stabilization is complete. [The construction activity Phases used in this General Permit are the Preliminary Phase, Grading and Land Development Phase, Streets and Utilities Phase, and the Vertical Construction Phase.]

Active Treatment System (ATS)
A treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation to aid in the reduction of turbidity caused by fine suspended sediment.

Acute Toxicity Test
A chemical stimulus severe enough to rapidly induce a negative effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute.

Air Deposition
Airborne particulates from construction activities. .

Approved Signatory
A person who has legal authority to sign, certify, and electronically submit Permit Registration Documents and Notices of Termination on behalf of the Legally Responsible Person.

Beneficial Uses
As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)
As defined by USEPA, BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)

As defined by USEPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Best Management Practices (BMPs)
BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody (COC)
Form used to track sample handling as samples progress from sample collection to the analytical laboratory. The COC is then used to track the resulting analytical data from the laboratory to the client. COC forms can be obtained from an analytical laboratory upon request.

Coagulation
The clumping of particles in a discharge to settle out impurities, often induced by chemicals such as lime, alum, and iron salts.

Common Plan of Development
Generally a contiguous area where multiple, distinct construction activities may be taking place at different times under one plan. A plan is generally defined as any piece of documentation or physical demarcation that indicates that construction activities may occur on a common plot. Such documentation could consist of a tract map, parcel map, demolition plans, grading plans or contract documents. Any of these documents could delineate the boundaries of a common plan area. However, broad planning documents, such as land use master plans, conceptual master plans, or broad-based CEQA or NEPA documents that identify potential projects for an agency or facility are not considered common plans of development.

Daily Average Discharge
The discharge of a pollutant measured during any 24-hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant

throughout the day (40 CFR 122.2). In the case of pH, the pH must first be converted from a log scale.

Debris
Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Direct Discharge
A discharge that is routed directly to waters of the United States by means of a pipe, channel, or ditch (including a municipal storm sewer system), or through surface runoff.

Discharger
The Legally Responsible Person (see definition) or entity subject to this General Permit.

Dose Rate (for ATS)
In exposure assessment, dose (e.g. of a chemical) per time unit (e.g. mg/day), sometimes also called dosage.

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common outlet.

Effluent
Any discharge of water by a discharger either to the receiving water or beyond the property boundary controlled by the discharger.

Effluent Limitation
Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Erosion
The process, by which soil particles are detached and transported by the actions of wind, water, or gravity.

Erosion Control BMPs
Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Field Measurements
Testing procedures performed in the field with portable field-testing kits or meters.

Final Stabilization
All soil disturbing activities at each individual parcel within the site have been completed in a manner consistent with the requirements in this General Permit.

First Order Stream
Stream with no tributaries.

Flocculants
Substances that interact with suspended particles and bind them together to form flocs.

Good Housekeeping BMPs
BMPs designed to reduce or eliminate the addition of pollutants to construction site runoff through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Grading Phase (part of the Grading and Land Development Phase)
Includes reconfiguring the topography and slope including; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; land form grading; and stockpiling of select material for capping operations.

Hydromodification
Hydromodification is the alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources. Hydromodification can cause excessive erosion and/or sedimentation rates, causing excessive turbidity, channel aggradation and/or degradation.

Identified Organisms
Organisms within a sub-sample that is specifically identified and counted.

Inactive Areas of Construction
Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Index Period
The period of time during which bioassessment samples must be collected to produce results suitable for assessing the biological integrity of streams and rivers. Instream communities naturally vary over the course of a year,and sampling during the index period ensures that samples are collected during a time frame when communities are stable so that year-to-year consistency is obtained. The index period approach provides a cost-effective alternative to year-round sampling. Furthermore, sampling within the appropriate index period will yield results that are comparable to the assessment thresholds or criteria for a given region, which are established for the same index period. Because index

periods differ for different parts of the state, it is essential to know the index period for your area.

K Factor
The soil erodibility factor used in the Revised Universal Soil Loss Equation (RUSLE). It represents the combination of detachability of the soil, runoff potential of the soil, and the transportability of the sediment eroded from the soil.

Legally Responsible Person
The person who possesses the title of the land or the leasehold interest of a mineral estate upon which the construction activities will occur for the regulated site. For linear underground/overhead projects, it is in the person in charge of the utility company, municipality, or other public or private company or agency that owns or operates the LUP.

Likely Precipitation Event
Any weather pattern that is forecasted to have a 50% or greater chance of producing precipitation in the project area. The discharger shall obtain likely precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at http://www.srh.noaa.gov/forecast).

Maximum Allowable Threshold Concentration (MATC)
The allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. A typical MATC would be:

The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

Natural Channel Evolution
The physical trend in channel adjustments following a disturbance that causes the river to have more energy and degrade or aggrade more sediment. Channels have been observed to pass through 5 to 9 evolution types. Once they pass though the suite of evolution stages, they will rest in a new state of equilibrium.

Non-Storm Water Discharges
Discharges are discharges that do not originate from precipitation events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Non-Visible Pollutants

Pollutants associated with a specific site or activity that can have a negative impact on water quality, but cannot be seen though observation (ex: chlorine). Such pollutants being discharged are not authorized.

Numeric Action Level (NAL)
Level is used as a warning to evaluate if best management practices are effective and take necessary corrective actions. Not an effluent limit.

Original Sample Material
The material (i.e., macroinvertebrates, organic material, gravel, etc.) remaining after the subsample has been removed for identification.

pH
Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6 and 9, with neutral being 7. Extremes of pH can have deleterious effects on aquatic systems.

Post-Construction BMPs
Structural and non-structural controls which detain, retain, or filter the release of pollutants to receiving waters after final stabilization is attained.

Preliminary Phase (Pre-Construction Phase - Part of the Grading and Land Development Phase)
Construction stage including rough grading and/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading.

Project

Qualified SWPPP Developer
Individual who is authorized to develop and revise SWPPPs.

Qualified SWPPP Practitioner
Individual assigned responsibility for non-storm water and storm water visual observations, sampling and analysis, and responsibility to ensure full compliance with the permit and implementation of all elements of the SWPPP, including the preparation of the annual compliance evaluation and the elimination of all unauthorized discharges.

Qualifying Rain Event
Any event that produces 0.5 inches or more precipitation with a 48 hour or greater period between rain events.

R Factor
Erosivity factor used in the Revised Universal Soil Loss Equation (RUSLE). The R factor represents the erosivity of the climate at a particular location. An

average annual value of R is determined from historical weather records using erosivity values determined for individual storms. The erosivity of an individual storm is computed as the product of the storm's total energy, which is closely related to storm amount, and the storm's maximum 30-minute intensity.

Rain Event Action Plan (REAP)
Written document, specific for each rain event, that when implemented is designed to protect all exposed portions of the site within 48 hours of any likely precipitation event.

Remaining Sub sampled Material
The material (e.g., organic material, gravel, etc.) that remains after the organisms to be identified have been removed from the subsample for identification. (Generally, no macroinvertebrates are present in the remaining subsampled material, but the sample needs to be checked and verified using a complete Quality Assurance (QA) plan)

Routine Maintenance
Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Runoff Control BMPs
Measures used to divert runon from offsite and runoff within the site.

Run-on
Discharges that originate offsite and flow onto the property of a separate project site.

Revised Universal Soil Loss Equation (RUSLE)
Empirical model that calculates average annual soil loss as a function of rainfall and runoff erosivity, soil erodibility, topography, erosion controls, and sediment controls.

Sampling and Analysis Plan
Document that describes how the samples will be collected, under what conditions, where and when the samples will be collected, what the sample will be tested for, what test methods and detection limits will be used, and what methods/procedures will be maintained to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols).

Sediment
Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation
Process of deposition of suspended matter carried by water, wastewater, or other liquids, by gravity. It is usually accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs
Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. They include those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (e.g., silt fence, sediment basin, fiber rolls, etc.).

Settleable Solids (SS)
Solid material that can be settled within a water column during a specified time frame. It is typically tested by placing a water sample into an Imhoff settling cone and then allowing the solids to settle by gravity for a given length of time. Results are reported either as a volume (mL/L) or a mass (mg/L) concentration.

Sheet Flow
Flow of water that occurs overland in areas where there are no defined channels where the water spreads out over a large area at a uniform depth.

Site

Soil Amendment
Any material that is added to the soil to change its chemical properties, engineering properties, or erosion resistance that could become mobilized by storm water.

Streets and Utilities Phase
Construction stage including excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvements.

Structural Controls
Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution

Suspended Sediment Concentration (SSC)
The measure of the concentration of suspended solid material in a water sample by measuring the dry weight of all of the solid material from a known volume of a collected water sample. Results are reported in mg/L.

Total Suspended Solids (TSS)
The measure of the suspended solids in a water sample includes inorganic substances, such as soil particles and organic substances, such as algae,

aquatic plant/animal waste, particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

Toxicity
The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Turbidity
The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Vertical Construction Phase
The Build out of structures from foundations to roofing, including rough landscaping.

Waters of the United States
Generally refers to surface waters, as defined by the federal Environmental Protection Agency in 40 C.F.R. § 122.2.[1]

Water Quality Objectives (WQO)
Water quality objectives are defined in the California Water Code as limits or levels of water quality constituents or characteristics, which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

[1] The application of the definition of "waters of the United States" may be difficult to determine; there are currently several judicial decisions that create some confusion. If a landowner is unsure whether the discharge must be covered by this General Permit, the landowner may wish to seek legal advice.

APPENDIX 6:
Acronym List

ASBS	Areas of Special Biological Significance
ASTM	American Society of Testing and Materials; Standard Test Method for Particle-Size Analysis of Soils
ATS	Active Treatment System
BASMAA	Bay Area Storm water Management Agencies Association
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgment
CAFO	Confined Animal Feeding Operation
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	NPDES General Permit for Storm Water Discharges Associated with Construction Activities
CIWQS	California Integrated Water Quality System
CKD	Cement Kiln Dust
COC	Chain of Custody
CPESC	Certified Professional in Erosion and Sediment Control
CPSWQ	Certified Professional in Storm Water Quality
CSMP	Construction Site Monitoring Program
CTB	Cement Treated Base
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
CWP	Center for Watershed Protection
DADMAC	Diallyldimethyl-ammonium chloride
DDNR	Delaware Department of Natural Resources
DFG	Department of Fish and Game
DHS	Department of Health Services
DWQ	Division of Water Quality
EC	Electrical Conductivity
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
ESC	Erosion and Sediment Control
HSPF	Hydrologic Simulation Program Fortran
JTU	Jackson Turbidity Units
LID	Low Impact Development
LOEC	Lowest Observed Effect Concentration
LRP	Legally Responsible Person
LUP	Linear Underground/Overhead Projects

MATC	Maximum Allowable Threshold Concentration
MDL	Method Detection Limits
MRR	Monitoring and Reporting Requirements
MS4	Municipal Separate Storm Sewer System
MUSLE	Modified Universal Soil Loss Equation
NAL	Numeric Action Level
NEL	Numeric Effluent Limitation
NICET	National Institute for Certification in Engineering Technologies
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observed Effect Concentration
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTR	National Toxics Rule
NTU	Nephelometric Turbidity Units
O&M	Operation and Maintenance
PAC	Polya luminum chloride
PAM	Polyacryla mide
PASS	Polya luminum chloride Silica/sulfate
POC	Pollutants of Concern
PoP	Probability of Precipitation
POTW	Publicly Owned Treatment Works
PRDs	Permit Registration Documents
PWS	Planning Watershed
QAMP	Quality Assurance Management Plan
QA/QC	Quality Assurance/Quality Control
REAP	Rain Event Action Plan
Regional Board	Regional Water Quality Control Board
ROWD	Report of Waste Discharge
RUSLE	Revised Universal Soil Loss Equation
RW	Receiv ing Water
SMARTS	Storm water Multi Application Reporting and Tracking System
SS	Settleable Solids
SSC	Suspended Sediment Concentration
SUSMP	Standard Urban Storm Water Mitigation Plan
SW	Storm Water
SWARM	Storm Water Annual Report Module
SWAMP	Surface Water Ambient Monitoring Program
SWMM	Storm Water Management Model
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TC	Treatment Control
TDS	Total Dissolved Solids

TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USACOE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirements
WLA	Waste Load Allocation
WET	Whole Effluent Toxicity
WRCC	Western Regional Climate Center
WQBEL	Water Quality Based Effluent Limitation
WQO	Water Quality Objective
WQS	Water Quality Standard

APPENDIX 7:
State and Regional Water Resources Control Board Contacts

NORTH COAST REGION (1)
5550 Skylane Blvd, Ste. A
Santa Rose, CA 95403
(707) 576-2220 FAX: (707)523-0135

SAN FRANCISCO BAY REGION (2)
1515 Clay Street, Ste. 1400
Oakland, CA 94612
(510) 622-2300 FAX: (510) 622-2640

CENTRAL COAST REGION (3)
895 Aerovista Place, Ste 101
San Luis Obispo, CA 93401
(805) 549-3147 FAX: (805) 543-0397

LOS ANGELES REGION (4)
320 W. 4th Street, Ste. 200
Los Angeles, CA 90013
(213) 576-6600 FAX: (213) 576-6640

CENTRAL VALLEY REGION (5S)
11020 Sun Center Dr., #200
Rancho Cordova, CA 95670-6114
(916) 464-3291 FAX: (916) 464-4645

FRESNO BRANCH OFFICE (5F)
1685 E St.
Fresno, CA 93706
(559) 445-5116 FAX: (559) 445-5910

REDDING BRANCH OFFICE (5R)
415 Knollcrest Drive, Ste. 100
Redding, CA 96002
(530) 224-4845 FAX: (530) 224-4857

LAHONTAN REGION (6 SLT)
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
(530) 542-5400 FAX: (530) 544-2271

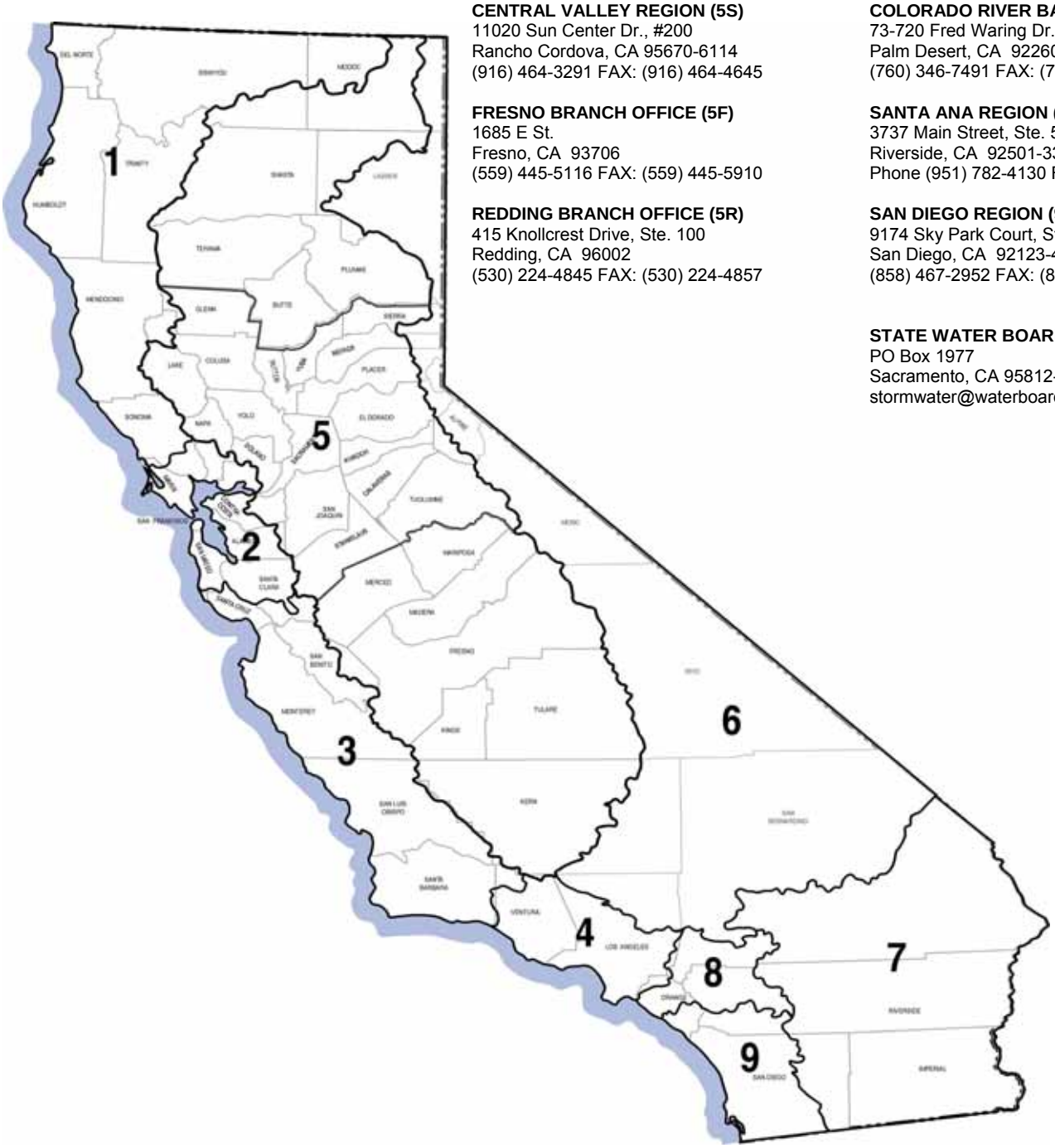
VICTORVILLE OFFICE (6V)
14440 Civic Drive, Ste. 200
Victorville, CA 92392-2383
(760) 241-6583 FAX: (760) 241-7308

COLORADO RIVER BASIN REGION (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491 FAX: (760) 341-6820

SANTA ANA REGION (8)
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
Phone (951) 782-4130 FAX: (951) 781-6288

SAN DIEGO REGION (9)
9174 Sky Park Court, Ste. 100
San Diego, CA 92123-4340
(858) 467-2952 FAX: (858) 571-6972

STATE WATER BOARD
PO Box 1977
Sacramento, CA 95812-1977
stormwater@waterboards.ca.gov



STATE WATER RESOURCES CONTROL BOARD
901 P STREET
SACRAMENTO, CALIFORNIA
JULY 15, 1999

FACT SHEET FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER DISCHARGES FROM THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) PROPERTIES, FACILITIES, AND ACTIVITIES (ORDER NO. 99 – 06 - DWQ)

BACKGROUND

In 1972, The Federal Water Pollution Control Act [also referred to as the Clean Water Act (CWA)] was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added section 402(p) which directs that storm water discharges are point source discharges and establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) promulgated final regulations that establish the storm water permit requirements.

Pursuant to these regulations, storm water permits are required for discharges from a municipal separate storm sewer system (MS4) serving a population of 100,000 or more. USEPA defined MS4 to include road systems owned by states which are in an area with a population greater than 100,000. The regulations also specified a requirement for storm water permits from 11 categories of industry, including construction activities where the construction activity disturbs five acres or more.

In California, the MS4s were issued individual NPDES permits by the Regional Water Quality Control Boards (RWQCB). Caltrans is currently under permit in all of the areas of California that have been determined to require an MS4 permit with the exception of the Salinas area. Industrial activities are covered by General Permits that have been adopted by the State Water Resources Control Board (SWRCB). Caltrans currently seeks coverage under the NPDES General Permit for Construction Activities (Construction General Permit) for construction activities that are over five acres. The exception to this is in the Lake Tahoe area, where the RWQCB adopted its own Construction General Permit for projects over five acres and Waste Discharge Requirements (WDRs) for projects under five acres.

In 1996, Caltrans requested that the SWRCB, consider adopting a single NPDES permit for storm water discharges from all Caltrans properties, facilities, and activities that would cover both the MS4 requirements and the statewide Construction General Permit requirements. The federal regulations allow for the issuance of system-wide MS4 NPDES permits. Caltrans submitted an application for a permit with a draft Storm Water Management Plan (SWMP) in August 1996. The SWRCB gave Caltrans comments on the SWMP and received a revised SWMP from Caltrans in March 1997. Because the RWQCBs have issued NPDES storm water permits to all of the areas currently requiring a permit, with the exception of the Salinas area, this permit was not considered a new storm water permit, and a Part I and Part II application were not required.

The "Interpretative Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" issued by USEPA on May 17, 1996 outlines the requirements for permittees seeking a second Municipal NPDES Storm Water Permit. The requirements are: (1) name and address of the applicant; (2) name and title of primary administrative and technical contacts; and (3) proposed changes or improvements to the storm water management program and monitoring activities for the upcoming five-year term of the permit. In addition, USEPA recommends that the applicant provide identification of any previously unidentified water bodies and a summary of any known water quality impacts.

This permit is intended to cover all municipal storm water activities by Caltrans in California, both in areas that require an MS4 permit and areas that do not currently require a permit. It is also intended to cover all Caltrans construction activities that require a permit under the federal regulations. It directs that all existing storm water permits for discharges from Caltrans properties, facilities, and activities should be rescinded. RWQCBs may in the future issue individual storm water permits for Caltrans construction activities, as explained below.

This permit shall be implemented and enforced by the nine RWQCBs.

PROHIBITIONS

This permit authorizes storm water and authorized nonstorm water discharges from Caltrans properties, facilities, and activities. This permit prohibits discharges of material other than storm water (nonstorm water discharges) that are not authorized by this permit.

EFFLUENT LIMITATIONS

NPDES permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges to the Maximum Extent Practicable (MEP) for the MS4 permit requirements and to the standard of Best Available Technology Economically Achievable/Best Conventional Technology (BAT/BCT) for Construction General Permit requirements. It

also requires dischargers to implement more stringent controls, if necessary, to meet water quality standards.

It is not feasible at this time to establish numeric effluent limitations for storm water. The reasons why establishment of numeric effluent limitations is not feasible are discussed in detail in SWRCB Orders No. WQ 91-03 and WQ 91-04. Therefore, this permit allows Caltrans to implement Best Management Practices (BMPs) to comply with the requirements of this permit.

RECEIVING WATER LIMITATIONS

Storm water discharges shall not cause or contribute to a violation of an applicable water quality standard. This permit requires Caltrans to reduce or prevent pollutants in storm water discharges and authorized nonstorm water discharges through the development and implementation of BMPs which constitutes compliance with either MEP or BAT/BCT, whichever is applicable. Storm water discharges must also be in compliance with water quality standards. If receiving water quality standards are exceeded, Caltrans is required to submit a written report providing additional BMPs or other measures to be taken that will be implemented to achieve water quality standards.

MS4 PERMIT REQUIREMENTS

MS4 permit requirements are to be implemented to MEP. These requirements are addressed in the SWMP that is an integral and enforceable component of this NPDES Permit. However, the SWMP also refers to other documents that Caltrans has prepared which give the detailed discussion of how the program elements are to be implemented. Where the SWMP was determined to be inadequate, further requirements are outlined in the permit. Caltrans will submit changes to the SWMP on an annual basis. Substantive changes to the SWMP will require approval by the SWRCB.

The SWMP which was submitted in August 1996 defined terms in the development of the program in a way that is inconsistent with the definitions in Title 40 of the Code of Federal Regulations Section 122.22 (40 CFR 122.22). Caltrans is required to rewrite the SWMP in a manner that is consistent with the definitions in the regulations. Caltrans also uses terms such as "winter season" and "significant erodible slope" which are not used in the regulations. Caltrans uses terms such as these to determine the scope of the program, with the understanding that Caltrans is responsible for discharges at all times during the year, and that if implementation of the program using these terms leads to discharge of pollutants, the terms will have to be redefined.

Caltrans is required to submit a revised SWMP within 90 days of the adoption of this permit. Because the SWMP is an integral and enforceable part of this permit, this revised SWMP will be presented to the State Board for approval. The incorporation of this revised SWMP into the permit will be made pursuant to the federal regulations for NPDES permit modification found at 40 CFR Section 122.62 and 40 CFR Section 124.

Caltrans has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities as part of the SWMP. This BMP program must be revised to reflect the definition of pollutant in the federal requirements, including a reevaluation of BMPs. The evaluation of the feasibility of structural BMPs in the SWMP does not reflect the current state of knowledge among other transportation agencies. BMPs are rejected that are routinely used by other transportation agencies. Therefore, the BMP selection in the SWMP does not meet MEP. The federal regulations require the consideration of structural BMPs where they are appropriate. MEP cannot be met without the consideration of structural BMPs. The fact that a BMP has not been used before is not an adequate reason to reject its use if other factors make it appropriate

In addition to the annual submittal of the SWMP, this permit also requires Caltrans to submit a workplan that explains how the program will be implemented in each Region. The purpose of the workplan is to bring the theoretical and proposed program of the SWMP to the practical and implementable level at the regional, watershed and water body level. Through the workplan process, Caltrans will be able to discuss the implementation of the program and show how their priorities will address specific local needs.

The MS4 permit requirements include:

Coordination with Local Agencies

This permit requires Caltrans to develop a program for communication with local agencies and coordination with other MS4 programs where the programs overlap geographically with Caltrans facilities.

Legal Authority

In the April 1998 SWMP, Caltrans submitted a certification of adequate legal authority to implement the program. Through implementation of a storm water program, Caltrans may find that the legal authority is, in fact, not adequate. This permit requires Caltrans to reevaluate the legal authority each year and recertify that it is adequate. Caltrans must submit the analysis of the legal authority as part of the Annual Report each year. If it becomes clear that the legal authority is not adequate to fully implement the SWMP and the requirements of the permit, Caltrans must seek the authority necessary for implementation of the program.

Fiscal Analysis

Caltrans must maintain adequate funding to implement an effective storm water program and must submit an analysis of the funding each year. This includes a report on the funding that is dedicated to storm water as well as an estimate of the funding that has been allocated to various program elements that is not included in the storm water

program funding. An example of this would be to estimate the funding that has been made available to the Maintenance Program to implement the development of Maintenance Facility Pollution Prevention Program Plans (FPPP) and to implement the BMPs that are necessary for water quality. In addition, Caltrans is required to seek adequate funding from the legislature for an effective storm water program.

Vegetation Control Program

This permit requires Caltrans to develop a program for vegetation control that minimizes the use of agricultural chemicals and maximizes the use of appropriate native and adapted vegetation for erosion control and filtering of runoff.

Storm Water System Management

This permit requires Caltrans to develop a program to monitor and clean storm drain inlets. For storm water structures that contain excessive material on a regular basis, Caltrans must determine if an Illicit Connection/Illegal Discharge (IC/ID) Detection investigation is warranted or if an enhanced BMP program is required for the drainage area. Vegetation in storm channels may reduce erosion from these channels and provide filtration and may be subject to sections 401 and 404 of the CWA.

Accidental Spills

This permit requires Caltrans to notify the MS4 permittee of any spills that may have an impact on the MS4's ability to comply with its municipal storm water permit. This means any spill that could reach the MS4 permittee's storm drain system in a large enough quantity to impact the system. Caltrans must also notify the RWQCB of any spill that may reach a receiving water and have an adverse effect on the receiving water. Generally, this notification would be limited to spills that are large enough to require cleanup or lane closure, but only if the spill could have an impact on water quality.

Illicit Connection/Illegal Discharge (IC/DC) Detection

This permit requires Caltrans to have a program to detect and investigate IC/IDs. Because Caltrans is different from a typical municipality, it is not intended that Caltrans should do routine inspections of their system for illicit connections. It is unlikely that a discharger would have access to the Caltrans storm drain system to make an illicit connection. It is also not intended that Caltrans would do routine field screening for illegal discharges. The Caltrans system is too large and spread out for this to be effective. However, Caltrans is required to train field maintenance personnel to recognize IC/IDs and to respond to them. Caltrans is also required to have a method for receiving and responding to public complaints.

Characterization of Discharges

In the areas which require an MS4 permit, Caltrans is required to characterize discharges as specified in 40 CFR 122.26(iv)(d)(1) and (2) over the life of the permit. This requirement was to be done as part of the Part II application for the initial permits that Caltrans received in these areas; so for most areas, this data should already be available. The purpose of this requirement is to provide Caltrans with adequate information about the storm drain system to effectively implement the program. This characterization is a one time requirement. If adequate information was submitted under the original Part II application, this requirement is satisfied and the data should be used as the basis for the Regional Workplans.

Maintenance Facilities

This permit requires Caltrans to prepare FPPP for all maintenance facilities, implement BMP programs at each facility as necessary and periodically inspect each facility. Monitoring is only required as part of the overall monitoring program to determine the effectiveness of the BMP program.

Training and Public Education

The Training and Public Education component consists of three parts to address the three major audiences that Caltrans must address. The three audiences are Caltrans employees, Caltrans contractors, and the general public. Caltrans has prioritized these three parts and has developed and implemented programs for the first two audiences. The program for the final part, which addresses the general public, will be developed and implemented during this permit period.

The detailed requirements in the permit outlining what is to be included in a public education component were recommended by the Public Information/Public Participation Subcommittee of the California Storm Water Quality Task Force. The members of this committee are all responsible for public education programs throughout the State and have experience in developing public education programs.

Program Evaluation and Monitoring

This permit requires Caltrans to evaluate the effectiveness and adequacy of the storm water program on an annual basis. This includes both monitoring and a self-audit of the program. Caltrans has submitted a three-year monitoring strategy that will be updated annually. Caltrans will also be required to submit a detailed monitoring program prior to the upcoming rainy season for each year. The monitoring is intended to demonstrate the effectiveness of its storm water and nonstorm water programs and specifically to achieve the following objectives:

1. Characterization of storm water discharges, including pollutant concentrations and mass loadings, from locations representative of Caltrans owned properties, facilities, and activities. Of particular interest is the discharge of high volume systems which discharge to areas subject to or sensitive to beach closures;

2. Evaluation of effectiveness of maintenance activity control measures;

3. Evaluation of effectiveness of maintenance facility pollution prevention plans;

4. Evaluation of effectiveness of construction erosion prevention and control measures;

5. Evaluation of effectiveness of permanent control measures; and

6. Evaluation of effectiveness of highway operation control measures.

Caltrans has also submitted a Guidance Manual for Stormwater Monitoring Protocols which specifies the manner in which monitoring is to be undertaken.

In addition to monitoring, Caltrans must perform a program audit each year to determine how well the program is being implemented and whether the program is actually adequate. Caltrans must submit an outline of this audit six months in advance of the Annual Report so that the SWRCB can evaluate the methods to be used to perform the audit.

Region Specific Concerns

Each of the RWQCBs was given the opportunity to specify specific water quality concerns in their Region that required special conditions. At this time, these requirements are limited to items that Caltrans is currently responsible for either under a current NPDES permit or under a RWQCB Basin Plan. Region-specific concerns have been identified in the Lahontan RWQCB. Some of the requirements are specific to the Lake Tahoe Hydrologic Unit and are based on the unique quality of the resource. Other requirements are applicable to the entire region.

To accommodate the concerns about the Lake Tahoe Hydrologic Unit, the Lahontan RWQCB has placed requirements in the RWQCB Basin Plan that are, therefore, requirements of this permit. They include (1) numeric effluent limits for storm water, (2) nonstorm water discharge prohibitions, (3) a requirement for the capture and treatment of all storm water from the 20-year storm, (4) erosion control guidelines for high mountain areas, (5) construction site and maintenance facility inspection requirements, and (6) a winter ban on soil disturbance throughout the Lake Tahoe Hydrologic Unit and other high mountain portions of the Region. If the Basin Plan requirements that are referenced in this NPDES Permit are changed during the life of this NPDES Permit,

Caltrans can request that the terms of this permit be changed to reflect the changes in the Basin Plan.

In addition, the Lahontan RWQCB requires Caltrans to meet some specific requirements in their construction program. These include involving the RWQCB in the design of the project and early submittal of Storm Water Pollution Prevention Plans (SWPPP).

The Lahontan RWQCB requires that Caltrans submit information to them about the program to control snow and ice throughout the Region. This requirement includes the submittal of information about the use of abrasives and deicing agents throughout the Region, including the location of the use, the source and chemistry of the deicing agents and abrasives, and the volume of abrasive and deicing agents used on individual highway segments. For example, Caltrans must report separately on abrasives and deicing agents use within the Lake Tahoe Hydrologic Unit by volume of material used on State Route 50, State Route 89, State Route 28, and State Route 267, rather than providing only the total volume used in the Lake Tahoe Hydrologic Unit or within a specific Caltrans District. In the Truckee River Hydrologic Unit, the reports would be volume of material used on State Route 89S, State Route 89N, State Route 267, and Interstate 80.

Caltrans is required to develop a monitoring program that evaluates the effectiveness of BMPs used to recover abrasives and deicing materials and that evaluates the impacts of abrasives and deicing materials on surface waters within the Lake Tahoe Hydrologic Unit. A report on the use of deicing agents and abrasives is required each year as part of the Annual Report.

CONSTRUCTION PERMIT REQUIREMENTS

Construction activities which disturb five acres or more outside of the Lake Tahoe Hydrologic Area are currently required to be covered by the Construction General Permit. The current Construction General Permit is SWRCB Order 99- DWQ.

The Lahontan RWQCB has developed an NPDES Storm Water Permit for construction projects that involve more than five acres of soil disturbance and non-NPDES waste discharge requirements for construction projects for projects less than five acres within the Lake Tahoe Hydrologic Unit. The current Lahontan Construction Permit is Lahontan RWQCB Board Order 6-93-63. The WDRs for small projects are contained in Lahontan RWQCB Board Order 6-91-31. All projects within the Lake Tahoe Hydrologic Area are currently subject to one of these two Board Orders depending on the size of the project.

Storm water discharges from all Caltrans construction projects will be covered by this permit except for those projects that the RWQCB determines should be covered by an individual permit. Caltrans will be required to notify the RWQCB that a project is to be covered under this permit at least 30-days prior to the onset of construction. This 30-day

notification under this permit is the equivalent of filing a Notice of Intent (NOI) under the Construction General Permit.

The RWQCB can require submittal of the SWPPP up to 30 days prior to the onset of soil disturbance, require changes to the SWPPP, perform inspections, and take enforcement action. Caltrans can negotiate an alternative process with the appropriate RWQCB if an alternative method of complying with the requirement for early submittal of the SWPPP is appropriate.

The permit requires Caltrans to implement an effective construction storm water program. The program that Caltrans plans to implement is contained in their SWMP. This plan, in turn, refers to BMP manuals and the Standard Specifications that contain the details of the BMP implementation.

Caltrans must implement an effective construction storm water program during the entire year throughout the State. Because the construction storm water program will be implemented year round, regardless of whether or not Caltrans elects to implement baseline or more advanced erosion control measures, any discharges of material not authorized by this permit is a violation.

Caltrans construction projects may involve soils that contain lead in quantities that meet the State definition of hazardous waste but not the federal definition. The Department of Toxic Substances Control (DTSC) has issued waivers allowing Caltrans to use these soils in construction projects under a narrow range of conditions. In addition to the waivers, Caltrans also needs authorization from the RWQCB to allow the use of these soils. Caltrans is required to obtain WDRs from the RWQCB for the use of these soils.

ANNUAL REPORT

This permit requires Caltrans to submit an Annual Report each April. The Annual Report will contain (1) an evaluation of the previous year's program, (2) the results of the program audit, including information about compliance with the construction requirements and maintenance facility requirements, (3) a vegetation management report, (4) an IC/ID report, (5) a nonstorm water discharge report, (6) an analysis of the legal authority, (7) an analysis of the fiscal resources for the coming year, (8) a report on the training and public education program, and (9) reports on the regional requirements. The Annual Report must also contain a monitoring report and a monitoring plan for the upcoming year and workplans for each of the regions. There is a one year lag in the reporting of the monitoring program and the program audit in the Annual Report. This lag is intended to allow Caltrans the time to adequately analyze the data that has been generated.

STATE WATER RESOURCES CONTROL BOARD

ORDER NO. 99 - 06 - DWQ
NPDES NO. CAS000003

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
STATEWIDE STORM WATER PERMIT
AND
WASTE DISCHARGE REQUIREMENTS (WDRs)
FOR THE
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS)

The State Water Resources Control Board (SWRCB) finds that:

1. **NPDES PERMIT APPLICATION**: On September 5, 1996, Caltrans, located at 1120 N Street, Sacramento, California 95814 submitted an NPDES Permit application for storm water discharges from the Caltrans highways, properties, facilities, and activities throughout the State of California for Caltrans headquarters and for the District offices including: the North Coast region (District 1), Northern Central Valley and Far Northeastern region (District 2), Sacramento area (District 3), San Francisco Bay area (District 4), Central Coast (District 5), Lower Central Valley (District 6), Los Angeles Basin (District 7), San Bernardino area (District 8), Mono/Inyo area (District 9), Middle Central Valley (District 10), San Diego area (District 11), and Orange County (District 12). The application was accepted on October 4, 1996. As part of the application, Caltrans submitted a Storm Water Management Plan (SWMP) and Monitoring Plan. The SWMP and Monitoring Plan were amended in March 1997 and again in April 1998. The application is considered an application for permit reissuance because Caltrans is currently under permit in all of the parts of the State for which a Municipal Separate Storm Sewer System (MS4) permit is currently required. The MS4 permits that Caltrans holds, the permitting agency, the adoption date, and expiration date are shown in Table 1.

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TABLE 1
CURRENT CALTRANS STORM WATER PERMITS

RWQCB	Caltrans District	Board Order	NPDES Permit Number	Adoption Date	Expiration Date
North Coast	4	97-119	CA0025038	10/22/97	10/22/02
San Francisco Bay	4 and 10	94-098	CAS029998	8/17/94	8/27/99
Los Angeles	7	90-079	CA0061654	6/18/90	6/18/95
Central Valley	6	94-244	CA0083500	9/16/94	9/1/99
Central Valley	3, 4, 6 and 10	95-001	CA0083640	1/27/95	1/1/00
Lahontan	3	6-93-62	CAS616002	6/11/93	6/11/98
Colorado River Basin	8 and 11	94-038	CAS617001	11/15/94	11/17/99
Santa Ana River	8 and 12	94-5	CA8000279	7/8/94	7/8/99
San Diego	8,11, and 12	97-08	CAS029998	3/12/97	3/12/02

2. **FEDERAL AUTHORITY**: In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited unless the discharge is in compliance with an NPDES Permit. The 1987 amendments to the CWA added section 402(p) that establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Permit Program.

3. **STATE AUTHORITY:** California Water Code section 13376 provides that any person discharging or proposing to discharge pollutants to waters of the United States must apply for and obtain WDRs. (For this permit, the State term "WDRs" is equivalent to the federal term "NPDES permits" as used in the CWA). Furthermore, municipal and industrial storm water discharges are discharges of waste that could affect the quality of the waters of the State. Applicable State of California regulations are contained in the California Code of Regulations (CCR), Title 23, Division 3, Chapter 9.

4. **CALTRANS DISCHARGES SUBJECT TO MUNICIPAL STORM WATER PERMIT REGULATIONS**: On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) promulgated final regulations that establish application requirements for storm water permits codified at Title 40 of the Code of Federal Regulations (CFR), Section 122.26 (40 CFR 122.26). Federal regulations 40 CFR 122.26(a)(iii) and (iv) require that NPDES storm water permits be issued for discharges from large and medium MS4s. The regulations define "municipal separate storm sewer" to mean "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a State, city, town, borough, county, . . .". Caltrans, as the owner of an MS4, is subject to an NPDES Permit in those areas of the State subject to an MS4 storm water permit. Caltrans performs activities that impact storm water quality. These activities include operation of roads and highways, construction activities, and maintenance activities.

To enable Caltrans to implement a uniform storm water program, this NPDES Permit will cover storm water discharges from all Caltrans highways, properties, activities and facilities throughout the State.

5. **CALTRANS DISCHARGES SUBJECT TO CONSTRUCTION STORM WATER PERMIT REGULATIONS**: Federal regulations (40 CFR 122.26) require discharges of storm water associated with construction activity including clearing, grading, and excavation activities (except operations that result in disturbance of less than five acres of total land area and which are not part of a larger common plan of development or sale) to obtain an NPDES Permit and to implement Best Management Practices (BMPs) that achieve the performance standards of Best Available Technology economically achievable/Best Conventional Pollutant Control Technology (BAT/BCT) to reduce or eliminate storm water pollution.

6. **STORM WATER DISCHARGE DEFINITION**: Storm water discharges consist only of those discharges that originate from precipitation events. Storm water is defined in 40 CFR 122.26(b)(13) as storm water runoff, snowmelt runoff, and surface runoff and drainage. During precipitation events, storm water picks up and transports pollutants into and through municipal storm water conveyance systems and ultimately to waters of the United States.

7. **NONSTORM WATER DISCHARGE DEFINITION:** Nonstorm water discharges consist of all discharges from a municipal storm water conveyance system which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Nonstorm water discharges include illicit discharges, nonprohibited discharges, and NPDES permitted discharges. An illicit discharge is defined in 40 CFR 122.26(b)(2) as "any discharge to a municipal storm sewer that is not composed entirely of storm water except discharges pursuant to an NPDES Permit (other than the NPDES Permit for discharges from the MS4) and discharges resulting from fire fighting activities." Nonstorm water discharges are addressed in Provision B of this permit.

8. **PERFORMANCE STANDARDS:** CWA section 402(p) establishes two different performance standards for storm water discharges. NPDES permits issued for MS4 storm water discharges require controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). Caltrans can reduce pollutants to MEP through the effective implementation of BMPs. NPDES Permits issued for industrial storm water discharges (including construction activities) must meet BAT for toxic pollutants and BCT for conventional pollutants. In addition, storm water discharges may not cause or contribute to exceedance of water quality standards. The requirements for compliance with water quality standards are described in Provision C., Receiving Water Limitations.

9. **CALTRANS ACTIVITIES**: Caltrans is primarily responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, maintenance facilities, and related properties, and facilities.

10. **CALTRANS BUDGET**: Caltrans derives funding from federal, State, and local government sources. The annual operating budget for Caltrans is determined through the

State's financial planning process. The final determination on the budget is made by the Legislature and the Governor.

11. **REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) BASIN PLANS:** Each RWQCB has adopted a Basin Plan containing the policies, prohibitions and requirements that apply to that Region. Caltrans is subject to the policies and prohibitions and requirements contained in these Basin Plans in the Region in which the Basin Plan is applicable.

12. **CALTRANS DISCHARGES**: Caltrans discharges consist of storm water and nonstorm water runoff generated from (a) maintenance and operation of State-owned highways, freeways, and roads; (b) maintenance facilities; (c) other properties, facilities, activities, and construction projects; (d) permanent discharges from subsurface dewatering, and (e) temporary construction related dewatering which discharge directly or through municipal storm water conveyance systems to surface water bodies in the State. These surface water bodies include creeks, rivers, reservoirs, lakes; wetlands, lagoons, estuaries, bays, and the Pacific Ocean and tributaries thereto. These surface waters are waters of the United States as defined in 40 CFR 122.2. This permit regulates storm water discharges on Caltrans highways, properties, and facilities.

13. **POTENTIAL POLLUTANTS IN CALTRANS DISCHARGES**: Discharges of storm water from the Caltrans owned rights-of-way, properties, facilities, and activities, including storm water management activities in construction, maintenance, and operation of State-owned highways within the State of California have been shown to be contributors of pollutants to waters of the United States. As such, the discharge of storm water may be causing or threatening to cause violations of water quality objectives. The quality and quantity of these discharges vary considerably and are affected by hydrology, geology, land use, season, and sequence and duration of hydrologic events. Pollutants occur in both the storm water discharges and nonstorm water discharges. Pollutant sources from Caltrans rights-of-way, properties, facilities, and activities include motor vehicles, highway maintenance, construction site runoff, maintenance facility runoff, illegal dumping, spills, and landscaping care. Pollutant categories include metals (such as copper, lead, and zinc), synthetic organics (petroleum products and pesticides), sediment, nutrients (nitrogen and phosphorus fertilizers), debris, oxygen demanding substances (decaying vegetation, animal waste, and other organic matter), and other pollutants which may cause aquatic toxicity in the receiving waters.

14. **STORM WATER MANAGEMENT PLAN (SWMP)**: The SWMP submitted by Caltrans describes a framework for management of storm water discharges during the term of this permit. The title page and table of contents of the SWMP are attached to this NPDES Permit. The SWMP describes the Caltrans facilities, the institutional arrangements within Caltrans, legal authorities, funding, training and public education and participation, the annual reporting program evaluation process, and monitoring studies to be undertaken. The SWMP includes a discussion of activities to be implemented by each of the Divisions within Caltrans, including programs for design and construction, maintenance, and additional region-specific programs to be undertaken. Revisions to the SWMP for subsequent years will be submitted to the SWRCB as part of the Annual Reporting and Program Evaluation Process. This NPDES Permit directs Caltrans to implement its

SWMP. Where the SWMP was found to be inadequate, this NPDES Permit directs Caltrans to fulfill additional requirements and specifies what these requirements are.

Caltrans SWMP must be revised in accordance with the Provisions of this NPDES Permit to address concerns about the scope, detail of proposed actions, and time frame for implementation.

Caltrans began implementation of this SWMP in March 1997.

15. **ENFORCEABILITY OF THE SWMP**: The SWMP and modifications or revisions to the SWMP that are approved, in accordance with Provision F.1 of this NPDES Permit, and future year workplans to be submitted, in accordance with the SWMP and Provision F.1 of this NPDES Permit, are integral to and an enforceable component of this NPDES Permit.

16. **LOCAL MUNICIPALITIES:** The RWQCBs have issued NPDES Permits for the discharge of storm water from municipal storm water conveyance systems to municipalities in California which require these permits. Caltrans operates highways and highway-related properties, activities, and facilities that cross through all of these permitted areas. Some storm water discharges from Caltrans-owned rights-of-way, properties, facilities, and activities discharge to storm water conveyance systems managed by these municipalities. Some storm water discharges from these municipalities discharge to storm water conveyance systems managed by Caltrans.

17. **LOCAL CONTROL**: This NPDES Permit does not preempt or supersede the authority of local municipal agencies to prohibit, restrict, or control storm water discharges and authorized nonstorm water discharges to storm drain systems or other watercourses within their jurisdictions as allowed by State and federal law.

18. **CALTRANS CONSTRUCTION PROGRAM**: Caltrans performs construction activities that are required to have NPDES Permits for storm water discharges from the construction site. This NPDES Permit will effectively regulate storm water discharges from construction projects within the Caltrans rights-of-way. Caltrans will not be required to obtain coverage under the State NPDES General Permit for Construction Activities (Construction General Permit), SWRCB Board Order 92-08 DWQ.

19. **DREDGE AND FILL MATERIALS:** This NPDES Permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA section 404 and does not constitute a waiver of water quality certification under CWA section 401.

20. **RECEIVING WATER LIMITATIONS**: The impact of storm water runoff from highway facilities on the water quality of receiving waters is highly variable. For this reason, this NPDES Permit does not include numeric effluent limitations. Instead, this NPDES Permit will emphasize the use of BMPs to control storm water pollution and the establishment of a monitoring program to determine the impact of storm water runoff from highways on receiving water bodies. The Lahontan RWQCB does have numeric effluent limits for storm water discharges for the Tahoe Basin in the Basin Plan. These numeric effluent limits also appear in their Regional Construction Permits (RWQCB Board Orders

6-91-31 and 6-93-63) and the Caltrans MS4 Permit RWQCB Board Order No. 6-93-62) for the Tahoe Basin, and these limits apply to this NPDES Permit in that area.

It is the SWRCBs intent that this NPDES Permit shall ensure attainment of applicable water quality objectives and protection of the beneficial uses of receiving waters. This NPDES Permit, therefore, includes standard requirements to the effect that discharges shall not cause or contribute to violations of water quality objectives nor shall they cause certain conditions to occur which create a condition of nuisance or water quality impairment in receiving waters. "Standard" language is the standard for storm water permits; it is not the same as the "standard" language for other NPDES permits. Accordingly, the SWRCB is requiring that these standard requirements be addressed through the implementation of control measures to reduce pollutants in storm water discharges.

Receiving water limitations in this NPDES Permit are based on the federal CWA, RWQCB Basin Plans and policies, USEPA Guidance, Best Professional Judgement, and BMPs.

21. **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**: The action to adopt an NPDES Permit is exempt from Provisions of the CEQA (CEQA: Public Resources Code section 21100, et. seq.), pursuant to section 13389 of the California Water Code.

22. **PUBLIC NOTIFICATION**: The SWRCB has notified Caltrans and all known interested agencies and persons of its intent to prescribe an NPDES Permit and WDRs for said discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.

23. **PUBLIC HEARING**: The SWRCB in a public meeting held on June 9, 1998 heard and considered all comments pertaining to this NPDES Permit. The permit was adopted at a public meeting held on July 15, 1999.

24. **RWQCB ENFORCEMENT**: Following adoption of this NPDES Permit, the RWQCBs shall enforce the Provisions.

25. **IMPLEMENTATION:** This NPDES permit is in compliance with section 402 of the CWA and shall take effect upon adoption by the SWRCB.

26. **ANTI-DEGRADATION:** This NPDES Permit is consistent with the anti-degradation Provision, section 40 CFR 131.12 and SWRCB Resolution 68-16.

IT IS HEREBY ORDERED that all MS4 storm water permits issued to Caltrans by RWQCBs shall be rescinded insofar as they apply to Caltrans.

IT IS HEREBY ORDERED that in order to meet the Provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the Provisions of the Federal CWA and the regulations and guidelines adopted thereunder, Caltrans shall comply with the following: (***REPORTING REQUIREMENTS ARE SHOWN IN ITALICS WITH ALL CAPITAL LETTERS***):

A. GENERAL DISCHARGE PROHIBITIONS

1. Any discharge from Caltrans rights-of-way or Caltrans properties, facilities, and activities within those rights-of-way that is not composed entirely of "storm water" to waters of the United States is prohibited unless authorized pursuant to Section B of this NPDES Permit. For some discharges, Caltrans may also need to obtain Water Quality Certification under CWA S2. The discharge of runoff from Caltrans owned rights-of-way or Caltrans properties, facilities, and activities to waters of the United States which have not been reduced to the MEP is prohibited. The discharge of runoff from construction sites containing pollutants which have not been reduced using BAT for toxic pollutants and BCT for conventional pollutants to waters of the United States is prohibited.

2. The discharge of pollutants or dredged or fill material to waters of the United States, except as authorized by an NPDES Permit or a dredged or fill material permit (subject to the exemption described in California Water Code (CWC) section 13376), is prohibited.

3. The discharge of waste to waters of the State in a manner causing or threatening to cause a condition of pollution or nuisance defined in CWC section 13050, is prohibited.

4. The dumping, deposition, or discharge of waste by Caltrans directly into waters of the State or adjacent to such waters in any manner that may allow its being transported into the waters is prohibited unless authorized by the RWQCB.

5. The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited. The discharge shall not contain toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

6. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the State or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.

7. Wastes or wastewater from road sweeping vehicles or from other maintenance or construction activities shall not be discharged to any surface waters or to any storm drain leading to surface water bodies.

Caltrans shall achieve the pollutant reductions described in General Discharge Prohibitions A.2. above through implementation of the SWMP described in General Requirements, Provision E., below.

B. NONSTORM WATER DISCHARGE PROHIBITIONS

1. Caltrans shall effectively prohibit nonstorm water discharges into its storm water conveyance system unless such discharges are either:

   a. authorized by a separate NPDES permit; or

   b. authorized in accordance with Nonstorm Water Discharge Prohibition B.2. of this NPDES Permit.

2. Exempted Discharges.

   In carrying out nonstrom Water Discharge Prohibition B.1. of this NPDES Permit, the following nonstorm water discharges need not be prohibited unless they are identified as sources of pollutants to receiving waters:

   a. flows from riparian habitats or wetlands;
   b. diverted stream flows;
   c. springs;
   d. rising ground waters; and
   e. uncontaminated ground water infiltration.

   If any of the above categories of discharges or sources of such discharges are identified as sources of pollutants to receiving waters, then such categories or sources shall be addressed as conditionally exempted discharges in accordance with Prohibition B.3.

3. Conditionally Exempted Discharges

   The following nonstorm water discharges need not be prohibited if identified by either Caltrans or the Executive Director as not being sources of pollutants to receiving waters or if appropriate control measures to minimize the adverse impacts of such sources are developed and implemented under the SWMP in accordance with Prohibition B.4.:

   a. uncontaminated pumped ground water;
   b. foundation drains;
   c. water from crawl space pumps;
   d. footing drains;
   e. air conditioning condensate;
   f. irrigation water;
   g. landscape irrigation;
   h. lawn or garden watering;
   i. planned and unplanned discharges from potable water sources;
   j. water line and hydrant flushing;
   k. individual residential car washing; and
   l. discharges or flows from emergency fire fighting activities.

4. Caltrans shall identify and describe the categories of discharges 3.a through 3.l that are to be exempt from Prohibition B.1 in the Annual Report. For each such category, Caltrans shall identify and describe as necessary and appropriate to the category either documentation that the discharges are not sources of pollutants to receiving waters or circumstances in which they are not found to be sources of pollutants to receiving waters. Otherwise, Caltrans shall describe (a) control measures to reduce pollutants to the maximum extent practicable and minimize the adverse impacts of such sources, (b) procedures and Performance Standards for their implementation, (c) procedures for notifying the SWRCB of these discharges, and (d) procedures for monitoring and record management. Such submissions shall be deemed to be incorporated into the SWMP unless disapproved by the Executive Director. If necessary, on a case-by-case basis, Caltrans shall prohibit any individual or class of nonstorm water discharge(s) listed above that is determined by Caltrans to be a significant source of pollutants to waters of the United States.

5. Permit Authorization for Exempted Discharges

   a. Discharges of nonstorm water from sources owned or operated by Caltrans are authorized and permitted by this Order, if they are in accordance with the conditions of this Provision and the SWMP.

   b. Any RWQCB may require dischargers of nonstorm water other than Caltrans to apply for and obtain coverage under an NPDES permit and comply with the control measures developed by Caltrans pursuant to Provision B. Nonstorm water discharges that are in compliance with such control measures may be accepted by Caltrans and are not subject to Prohibition B.1. Caltrans may refer nonstorm water dischargers to the Caltrans system to the RWQCB for permitting or enforcement.

   c. Caltrans may propose additional categories of nonstorm water discharges to be included in the exemption to Discharge Prohibition B.1. Such proposals are subject to approval in accordance with the NPDES permit regulations.

6. If a RWQCB Executive Officer determines that any individual or class of nonstorm water discharge(s) listed in Nonstorm Water Discharge Prohibition B.2 or B.3. above may be a significant source of pollutants to waters of the United States in that region, the RWQCB Executive Officer may require Caltrans to monitor and submit a report on the discharge and to follow the procedures outlined in Nonstorm Water Prohibition B.4. The RWQCB may require that discharge cease in the event that nonstorm water discharges are a significant source of pollutants to waters of the United States.

7. Caltrans shall examine all illicit connection/illegal discharge (IC/ID) investigation results for the presence of elevated levels of pollutants (e.g., chlorine, sediments, or surfactants) which may be the result of one or more classes of nonprohibited nonstorm water discharge(s) identified in Nonstorm Water Discharge Prohibition B.2. or B.3. above. If such elevated levels of pollutants are commonly present, Caltrans

shall conduct a follow-up investigation to identify the source of the elevated pollutants.

8. Discharges or flows from health and safety emergencies, such as fire fighting activities and accident response, shall be addressed only when such flows are identified by Caltrans to be significant sources of pollutants to waters of the United States. *(It is not the intention of the SWRCB for Caltrans to prohibit, under any circumstances, the discharge of water or other fire retardants that flow into storm water conveyance systems as a result of their use for protection of life and public or private property. However, there may be instances when specified BMPs are appropriate for fire fighting flows).* Although this NPDES Permit does not prohibit these discharges, they may still be subject to regulation under the federal and/or State law.

9. Caltrans shall submit a ***COMPREHENSIVE NONSTORM WATER REPORT*** each year as part of the Annual Report. This report shall include the analysis of each category of discharge, and the BMPs to be implemented for each category. Caltrans must also periodically evaluate the effectiveness of the modified BMPs by examining illicit discharge/illegal dumping investigation results and take any further action necessary to reduce such pollutant concentrations.

C. RECEIVING WATER LIMITATIONS

C-1- RECEIVING WATER LIMITATIONS FOR MUNICIPAL ACTIVITIES:

1. The discharge of storm water from a facility or activity that causes or contributes to the violation of water quality standards or water quality objectives (collectively WQSs) is prohibited.

2. The discharges shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the State:

   a. Floating, suspended solids, or deposited macroscopic particulate matter, or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin, and /or;

   e. Toxic or deleterious substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption

either at levels created in the receiving waters or as a result of biological concentration.

3. Caltrans shall comply with Parts C-1.1. and 2. of this permit through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this permit including any modifications; the SWMP shall be designed to achieve compliance with Parts C-1.1. and 2. of this permit; if exceedance(s) of WQSs persist notwithstanding implementation of the SWMP and other requirements of this permit, the permittee shall assure compliance with Parts C-1.1. and 2. of this permit by complying with the following procedure:

   a. Upon a determination by either Caltrans or the RWQCB that discharges are causing or contributing to an exceedance of an applicable WQS, Caltrans shall promptly notify and thereafter submit a report to the appropriate RWQCB. The report shall describe BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the SWMP unless the RWQCB directs an earlier submittal. The report shall include an implementation schedule. The RWQCB may require modifications to the report;

   b. Submit any modifications to the report required by the RWQCB within 30 days of notification;

   c. Within 30 days following approval of the report described above by the RWQCB, Caltrans shall revise the SWMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required; and

   d. Implement the revised SWMP and monitoring program in accordance with the approved schedule.

4. So long as Caltrans has complied with the procedures set forth in Receiving Water Limitations C-1-3. above and are implementing the revised SWMP, Caltrans does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the RWQCB to develop additional BMPs.

C-2-RECEIVING WATER LIMITATIONS FOR CONSTRUCTION ACTIVITIES:

1. Storm water discharges and authorized nonstorm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. The SWPPP developed for the construction activity covered by this NPDES Permit

shall be designed and implemented such that storm water discharges and authorized nonstorm water discharges shall not cause or contribute to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan and/or the applicable RWQCB's Basin Plan.

3. Should it be determined by Caltrans, SWRCB or RWQCB staff that storm water discharges and/or authorized nonstorm water discharges are causing or contributing to an exceedance of an applicable water quality standard, Caltrans shall:

   a. Implement corrective measures immediately following discovery that water quality standards were exceeded, followed by notification of the RWQCB by telephone as soon as possible but no later than 48 hours after the discharge has been discovered. This notification shall be followed by a report within 14 days to the appropriate RWQCB, unless otherwise directed by the RWQCB, describing (1) the nature and case of the water quality standard exceedance; (2) the BMPs currently being implemented; (3) any additional BMPs which will be implemented to prevent or reduce pollutants that are causing or contributing to the exceedance of water quality standards; and (4) any maintenance or repair of BMPs. This report shall include an implementation schedule for corrective actions and shall describe the actions taken to reduce the pollutants causing or contributing to the exceedance.

   b. Caltrans shall revise its SWPPP and monitoring program immediately after the report to the RWQCB to incorporate the additional BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring needed.

   c. Nothing in this section shall prevent the appropriate RWQCB from enforcing any provisions of this permit while Caltrans prepares and implements the above report.

D. RWQCB AUTHORITIES

1. Following adoption of this permit, RWQCBs shall implement the Provisions of this permit. Implementation of this permit may include, but is not limited to, reviewing SWPPPs, reviewing Maintenance Facility Pollution Prevention Plans (FPPPs), reviewing monitoring reports, conducting compliance inspections, conducting monitoring, reviewing the Annual Reports and taking enforcement actions.

2. RWQCBs may require submittal of, require changes to, specify a format for, and enforce Provisions of SWPPPs and FPPPs. RWQCBs may also designate projects which do not meet the acreage requirements based upon water quality concerns and require SWPPPs. RWQCBs may require that Caltrans submit all SWPPPs automatically up to 30 days in advance of the onset of construction.

3. RWQCBs may require retention of records for more than three years.

4. RWQCBs may require additional monitoring and reporting program requirements and may provide guidance on monitoring plan implementation.

5. RWQCBs may require Caltrans to conduct additional site inspections, submit reports and certifications, to perform water quality sampling and analysis of discharges from construction sites, roadways and maintenance facilities.

6. RWQCB staff may inspect Caltrans facilities and construction sites.

7. The RWQCB Executive Officer may require Caltrans to monitor and submit a report on nonstorm water discharges that have been determined to be a source of pollutants in the region.

8. RWQCB may issue Caltrans other individual storm water NPDES permits, particularly for large construction projects or other discharges beyond the scope of this permit.

E. GENERAL REQUIREMENTS

In order to meet the federal requirements contained in the CWA and the corresponding regulations contained in the 40 CFR 122.26, Caltrans shall:

1. Maintain and implement an effective SWMP. The SWMP shall identify and describe the BMPs used to control or reduce pollutants to waters of the United States to MEP for the Municipal Storm Water Management activities (all activities except construction). For the Construction Management Program, the SWMP shall identify and describe BMPs used to control or reduce pollutants to waters of the United States that meet BAT/BCT. BMP development is a fluid and dynamic process, and the menu of BMPs contained in the SWMP may require changes over time as experience is gained and/or the state of the art progresses. The SWMP shall be reviewed annually and modified as necessary to maintain an effective program. The SWMP shall reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible. The ***REVISED SWMP*** shall be submitted to the SWRCB's Executive Director by April 1 as part of the Annual Report (40 CFR 122.26 (d)(vi)) each year. In accordance with NPDES Permit regulations, significant changes to the program will be taken to the SWRCB for approval. Caltrans shall change all other appropriate manuals to reflect modifications to the SWMP.

2. In addition to the revised SWMP, Caltrans shall submit ***REGIONAL WORKPLANS*** (workplans) each year for each region by April 1 as part of the Annual Report each year. The workplans will be forwarded to the appropriate RWQCB's Executive Officer for approval. The workplan shall cover all activities to be undertaken by the Districts in the region and shall address the water bodies in the region, the impact of the Caltrans discharge on the water body and the BMPs and monitoring program to be implemented in the region, and changes that are to be made to the previous year's

program. The workplan shall also include identification of high risk areas, such as locations where spills from Caltrans owned rights-of-way, activities or facilities can discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities, and consideration of appropriate spill containment and spill prevention control measures for these new areas. Because the BMP programs and monitoring program are described in other documents, this workplan shall describe how the various programs will be implemented in the Region.

3. The SWMP shall define terms in a manner that is consistent with the definitions in 40 CFR 122.2. This includes, but is not limited to, the definitions for pollutant, waters of the United States, and point source. Where there is a conflict between the SWMP and the permit language, the permit language shall govern.

4. The SWMP shall include or describe procedures for implementing the following:

CHAPTER 1.	PROGRAM OVERVIEW (Provision F)
CHAPTER 2.	PROGRAM MANAGEMENT (Provision G)
CHAPTER 3.	CONSTRUCTION PROGRAM MANAGEMENT (Provision H)
CHAPTER 4.	MAINTENANCE PROGRAM MANAGEMENT (Provision I)
CHAPTER 5.	TRAINING AND PUBLIC EDUCATION (Provision J)
CHAPTER 6.	PROGRAM EVALUATION/REPORTING (Provision K)
CHAPTER 7.	LOCATION SPECIFIC REQUIREMENTS (Provision L)

F. PROGRAM OVERVIEW

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision F.

1. Caltrans must reevaluate and revise the BMP program in the SWMP to reflect the definition of pollutant in the federal regulations. The selection of BMPs must reflect the need to meet MEP, or where appropriate, BAT/BCT and water quality standards. It is appropriate to address pollutants known to be in a waste stream, even if there is not yet any documented evidence of adverse effect. Decisions regarding storm water management should be made in response to site-specific circumstances, depending on the location and nature of the activity in question and the local receiving water conditions. In geographic areas in which the requirements in effect prior to adoption of this permit are more stringent than the requirements of this permit, Caltrans will specify in the SWMP and regional workplans, a program which is at least as stringent as the prior requirements for that area. In no event shall the BMP program in any part of the State be less stringent than it was under the prior requirements.

2. The revised SWMP shall be submitted within 90 days of the adoption of the permit. Until such time as Caltrans has an approved SWMP, Caltrans will continue to meet the requirements that were in effect under the permits adopted by RWQCBs.

3. Caltrans shall include an analysis of the feasibility of structural controls in the BMP selection process. At a minimum, a consideration of structural controls for water

quality improvement shall be included in the design of any new construction or major reconstruction or repair projects.

The SWMP shall be updated each year as part of the Annual Report and shall contain the following elements:

a. A listing of appropriate control measures, including design, operation, and maintenance specifications, referenced by facility type, location, and other suitable factors. (Suitable factors may include prevention and control of erosion and sedimentation, source control of potential pollutants, control of pathogens, control and treatment of runoff, spill containment, and protection of wetlands and water quality resources);

b. An effective operation and maintenance program for BMPs;

c. Consideration of pollution prevention and pollutant removal factors, including spill containment and corresponding operation and maintenance requirements in the design of facility drainage structures and other features;

d. Development and implementation of policies, programs, procedures, and standards to improve pollutant removal and water quality benefits of landscape design after construction is completed;

e. A description of how these BMPs will be developed, constructed and maintained by the Environmental Engineering, Project Development, Construction, and Maintenance Branches and other affected functional offices and branches;

f. A ***BMP SELECTION REPORT*** which presents the revisions to the BMP programs (including both structural and nonstructural BMP candidates) to be implemented in the coming year along with the process used for evaluating the revised BMPs. The process shall include a mechanism for public input and review during the BMP selection process; and

g. A mechanism for evaluating new treatment and control technologies and for considering these technologies as part of the BMP programs. A ***NEW TECHNOLOGY REPORT*** is required as part of the Annual Report each year.

4. Storm Water Drainage System Retrofitting: In urban areas subject to a MS4 permit, Caltrans shall seek opportunities to retrofit the Storm Water Drainage System for water quality improvement whenever a section of the rights-of-way undergoes significant construction or reconstruction. Permanent control measures shall be implemented, both to control erosion and to control runoff of pollutants resulting from normal use of Caltrans facilities such as highways.

   a. Controls that shall be considered: Techniques that capture and or reduce the amount of pollutants, especially sediment from entering the storm drain system

or receiving water. Cost effectiveness is a factor in the consideration of controls.

b. Treatment controls that have proven to be cost prohibitive to date and therefore need not be considered for most situations include reverse osmosis, ion exchange, and granular activated carbon.

G. PROGRAM MANAGEMENT

Caltrans shall implement the program specified in their SWMP. Caltrans shall also implement any additional requirements contained in this Provision G.

.1. Coordination with MS4 Permittees

a. Caltrans is expected to comply with lawful requirements of municipalities, counties, drainage districts, and other local and or regional agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the jurisdiction of the local and or regional agencies. These include, but are not limited to applicable requirements in MS4 storm water programs developed to comply with NPDES Permits issued by the RWQCBs to local agencies.

b. Caltrans shall submit a ***MUNICIPAL COORDINATION PLAN*** to the SWRCB Executive Director within 90 days of the adoption of the Permit for approval. The plan shall describe the approach that Caltrans will take in establishing communication, coordination, cooperation, and collaboration of Caltrans storm water management activities and other pertinent activities with MS4 storm water management programs including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. Caltrans shall report on the progress of this interagency cooperation in each Annual Report.

2. Legal Authority

a. Caltrans shall establish and maintain adequate legal authority through ordinance, statute, permit, contract or other means to control discharges to and from Caltrans properties, facilities and activities pursuant to 40 CFR 122.26(d)(2)(i)(A-F).

b. Caltrans has provided a statement certified by its chief legal counsel that Caltrans has adequate legal authority to implement and enforce each of the key regulatory requirements contained in 40 CFR 122.26(d)(2)(i)(A-F). Caltrans shall submit annually, as part of the Annual Report, an ***ANALYSIS OF THE ADEQUACY OF LEGAL AUTHORITY*** based on Caltrans experiences during the previous year and explain and justify whatever conclusions are reached in the annual certification of legal authority.

3. Fiscal Resources

   a. Caltrans shall maintain adequate fiscal resources to maintain compliance with this NPDES Permit. This includes but is not limited to:

      (1) implementing and maintaining all BMPs identified in the SWMP,

      (2) maintaining an effective storm water monitoring program, and

      (3) retaining adequate trained personnel to manage the storm water program.

   b. Caltrans shall submit a ***FISCAL ANALYSIS*** of the storm water program expenditures within 90 days of the adoption of this permit and shall include one for the 3rd year and 5th year of the Permit period in the Annual Report submitted April 1. At a minimum, the fiscal analysis shall show the allocation of funds to the Districts for compliance with this permit; the funding of the program elements; and a comparison of actual past year expenditures with the current year's expenditures and next year's proposed expenditures. The 3rd year report shall show how Caltrans funding met the goals set out for the program in the first two years. The 5th year report shall contain the budget analysis for the next permit period.

4. Policies: Caltrans shall identify policies needed to resolve conflicts between implementation of the storm water program and current standard practices and policies.

5. Inspection Program: Caltrans shall have an inspection program to insure actions are implemented and facilities are constructed, operated, and maintained in accordance with this NPDES Permit and the SWMP. The program shall include training for inspection personnel, documentation of field activities, a reporting system that can be used to track effectiveness of control measures, enforcement procedures (or referral for enforcement) for noncompliance, and responsibilities and responsible personnel of all affected functional offices and branches.

H. CONSTRUCTION PROGRAM MANAGEMENT

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision H.

1. Caltrans shall have a program to control all construction in the rights-of-way. This includes both construction by Caltrans, construction done under contract for Caltrans, and construction done by local government agencies or other third parties on Caltrans or nonCaltrans projects. The program must include:

   a. review of construction site plans;

   b. requirement of structural and nonstructural BMPs;

c. site inspections and enforcement; and

d. education of construction site operators.

The program must be implemented year round on all construction projects in all parts of the State. The SWMP must be revised to address these requirements and have a program and a schedule for inspections.

2. The Construction Management Program shall be in compliance with requirements of the NPDES General Permit for Construction Activities (Construction General Permit) not including NOI filing. The current Construction General Permit is SWRCB Board Order 92-08--DWQ.

Terms that are defined in the Construction General Permit will have the same definition for the construction portion of this NPDES Permit.

3. The Lahontan RWQCB has adopted an NPDES Storm Water Permit for construction projects that involve more than five acres of soil disturbance and nonNPDES WDRs for construction projects for projects less than five acres within the Lake Tahoe Hydrologic Unit. The current nonNPDES Lahontan Construction Permit is Board Order 6-93-63. The WDRs for small projects are contained in Lahontan RWQCB Board Order 6-91-31. Projects in the Lake Tahoe Hydrologic Unit must be in compliance with the Provisions of the Lahontan RWQCB Order that is applicable to the project. The Lahontan RWQCB has also developed erosion control guidelines for high mountain areas throughout the region. Caltrans shall follow these guidelines in the appropriate parts of the region.

4. Caltrans shall plan, site, and develop roads and highways in a manner that protects water quality, beneficial uses of water and minimizes erosion and sedimentation .

5. Caltrans shall site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing water quality benefits are protected from adverse effects.

6. Caltrans shall limit the application, generation, and migration of toxic substances from construction sites.

7. Caltrans shall implement adequate erosion and sediment control BMPs during the interim period between completion of construction and final landscaping activities.

8. The following items apply to construction activities:

a. A report of ***NOTIFICATION OF CONSTRUCTION*** for all construction projects shall be submitted to the appropriate RWQCB at least 30 days prior to the start of construction. The tentative start date, tentative duration, location of construction, description of project, an estimate of the number of affected acres, resident engineer in charge of the project, and telephone number of the resident

engineer shall be reported. If a resident engineer has not been assigned at the time of notification, information about the construction field office should be provided and the resident engineer information provided when the assignment is made.

b. A site specific SWPPP shall be developed and implemented for each construction project as required by the State Construction General Permit (or the appropriate Lahontan RWQCB Permit). The RWQCBs can designate projects under five acres which pose a threat to water quality as being subject to the conditions of this permit and can require the development and implementation of an SWPPP from these projects. For projects that may have a significant potential water quality impact, Caltrans is encouraged to involve the RWQCB staff in the planning stages. The SWPPP shall contain a BMP program that meets the performance standards of BAT/BCT. The resident engineer shall approve the SWPPP prior to construction and ensure that the SWPPP is effectively implemented. The SWPPP shall contain all of the elements required by the Construction General Permit. Caltrans is responsible for having an effective SWPPP at all times and for implementing the SWPPP at an appropriate level through the entire year. RWQCB staff has the authority to require the submittal of an ***SWPPP*** at any time, including up to 30 days prior to commencement of significant soil disturbance activities; to require changes to the SWPPP; and to enforce the provisions of the SWPPP.

   The SWPPP shall contain a BMP program for any mobile operations that are used in the construction project. This includes operations such as asphalt recycling, concrete mixing, crushing, and storage of materials that are established by the contractor within the construction site or on other property specifically arranged for and provided by Caltrans for execution of the project.

   The SWPPP shall apply to all areas that are directly related to the construction activity, including but not limited to staging areas, storage yards, material borrow areas and storage areas, access roads, etc., whether or not they reside within the Caltrans rights-of-way.

c. Monitoring and inspection of construction sites shall be done in accordance with the Provisions of the Construction General Permit. Noncompliance shall be reported in accordance with the plan to be submitted under Program Evaluation and Reporting Provision K.2.a.

d. A ***NOTICE OF COMPLETION*** shall be submitted to the RWQCB upon completion of the construction and stabilization of the site. A project will be considered complete when the criteria for final stabilization in the Construction General Permit are met.

9. Caltrans has applied for and received variances from the California Department of Toxic Substances Control (DTSC) for the reuse of some soils that contain lead. Notification that projects involve soils that are subject to this variance shall be provided to the appropriate RWQCB(s) in writing 30 days prior to advertisement for

bids to allow a determination by the RWQCB(s) of the need for development of WDRs.

I. MAINTENANCE PROGRAM MANAGEMENT

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision I.

1. Highway Maintenance Activities

   a. Caltrans shall develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

      (1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures).

      (2) Establish schedules for implementing appropriate controls.

      (3) Identify road segments with slopes that are prone to erosion and discharge of sediment and stabilize these slopes to the extent possible.

   b. Vegetation Control: Caltrans shall revise the Vegetative Control Program to reflect the following elements:

      (1) Enhancement of the use of appropriate native and adapted vegetation throughout all Caltrans rights-of way for the purpose of preventing erosion and removing pollutants in storm water and nonstorm water runoff.

      (2) Application of herbicides in a manner that minimizes or eliminates the discharge of herbicides to receiving waters. Factors to be considered include timing in relation to expected precipitation events, proximity to water bodies, and the effects of using combinations of chemicals.

      (3) Caltrans shall apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

      (4) In places where Caltrans has already developed vegetation control management plans, Caltrans shall continue to implement these plans and integrate them into their overall statewide plan. In instances where elements of these plans are to be changed or dropped, Caltrans shall discuss the changes in the workplan portion of the Annual Report.

   c. Storm Water Drainage System Facilities Maintenance

      (1) Caltrans shall remove all waste from those inlets that pose a significant threat to water quality on an annual basis prior to the winter season each

year. All waste removed from drain inlets shall be managed in accordance with all applicable laws and regulations, including CCR Title 27, Division 2, Subdivision 1.

(2) Drain inlets which contain significant materials must be considered for an IC/ID investigation and considered for an enhanced BMP program focused on reducing the sources of the material found in the inlet.

2. Highway Surveillance Activities

a. Accidental Spills

(1) Caltrans will follow Office of Emergency Services (OES) procedures for reporting highway spills.

(2) A report of ***DISCHARGE OR THREAT OF DISCHARGE NOTIFICATION*** will be made under the following conditions: Caltrans will notify the owner/operator of the MS4 or the principal permittee as soon as practicable, but no later than 24 hours after onset of or threat of discharge of any discharge or threat of discharge which can cause adverse conditions to the storm sewer system or the receiving water that is not covered by OES procedures from a highway to a storm sewer system subject to an MS4 permit.

(3) A report of ***DISCHARGE OR THREAT OF DISCHARGE NOTIFICATION*** will be made immediately to the RWQCB of any discharge which can cause adverse conditions to the storm sewer system or the receiving water, with a follow up in writing within 24 hours. Adverse conditions include but are not limited to serious violations or serious threatened violations of WDRs, significant spills of petroleum products or toxic chemicals, or serious damage to control facilities that could affect compliance. Caltrans shall perform follow-up monitoring of major spills and/or perform confirmation sampling to ensure that threats to waters of the United States have been eliminated as determined by the local RWQCB. (This Provision applies to highway operation, not construction projects. Provisions for reporting discharges are contained in the Construction General Permit).

b. IC/ID Detection Program: Caltrans shall implement the IC/ID Detection Element described in the SWMP in conjunction with the legal authority with the following changes:

(1) Detection of IC/IDs: Caltrans shall develop procedures for receiving and investigating public complaints including establishing telephone numbers which the public can use to report IC/IDs and shall post these numbers in places where illegal dumping is found to be a problem.

(2) Investigation of each IC/ID: Caltrans shall develop procedures to conduct investigations of every IC/ID to identify the source. These procedures may include further field screening (observations and field analyses), collection and laboratory analysis of samples (upstream and downstream), smoke or dye tests, video taping with a remote control camera, or other appropriate means.

(3) Elimination of IC/IDs: Caltrans shall eliminate all identified IC/IDs as expeditiously as possible. In addition to reporting IC/IDs to the municipal authorities and to the RWQCBs, Caltrans shall use its own legal authority to eliminate IC/IDs.

(4) Caltrans shall develop a procedure to track all reports of IC/IDs and the action taken on them. A ***REPORT ON THE IC/ID PROGRAM*** will be required each year as part of the Annual Report.

(5) Caltrans shall report on the program developed under this Provision as part of the April 2000 Annual Report. (***DEVELOPMENT OF IC/ID PROGRAM***).

3. Program for Highway Maintenance Facilities

a. Caltrans shall prepare Maintenance FPPPs for all maintenance facilities. Because these facilities are considered municipal activities rather than industrial activities, these FPPPs must have BMP programs that reduce pollutants to MEP.

b. Generic FPPP elements can be used for activities that are performed at more than one maintenance facility; however, each site must be evaluated separately and provided with appropriate site specific BMPs.

c. RWQCB staff has the authority to require the submittal of a FPPP at any time, to require changes to a FPPP, and to require the implementation of the Provisions of a FPPP.

J. TRAINING AND PUBLIC EDUCATION

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision J.

In areas where Caltrans is already participating in an areawide Public Education Program, Caltrans will continue participation. The Public Education Program shall address the three main audiences that impact Caltrans storm water discharges. The three audiences are: Caltrans Employees; Caltrans Construction Contractors, and the General Public. The program shall contain the following elements for each of these groups:

1. Caltrans Employees

a. Caltrans shall implement the program specified in the SWMP.

b. Caltrans shall provide frequent educational reminders to employees to reinforce the training.

2. Caltrans Construction Contractors

a. Caltrans shall implement the program specified in the SWMP.

b. Caltrans shall provide outreach to contractors to raise their awareness of the problems and causes of storm water pollution and to reinforce their training.

3. General Public

a. ***PLAN FOR DEVELOPMENT AND IMPLEMENTATION OF A PUBLIC EDUCATION PROGRAM***: Caltrans shall submit a plan for approval by the SWRCB Executive Director within 180 days of adoption of this NPDES permit for development and implementation of a Public Education Program that includes education of the general public and commercial and industrial entities whose actions may impair storm water quality discharged from Caltrans properties, facilities and activities. In areas where a Caltrans is already part of a Public Education Program with other MS4 permittees, Caltrans must continue with their participation in the program. (***PLAN FOR DEVELOPMENT AND IMPLEMENTATION OF A PUBLIC EDUCATION PROGRAM***)

b. The plan shall include the following elements:

(1) Research--A plan for conducting research on public behavior that affects the quality of Caltrans runoff. The information gathered will form the foundation for all the public education conducted.

(2) Public Education Strategy--Develop a three-year public education strategy. The strategy should be based on the research conducted and must include goals and objectives to be achieved regarding changing behaviors.

(3) Mass Media Advertising--Develop and conduct an advertising campaign as a focal point of the public education strategy. The campaign should focus on the behaviors of concern and should be designed to motivate the public to change those behaviors. The public education campaigns may be done as a cooperative effort with other MS4 permittees.

c. Upon approval of the submitted plan, Caltrans shall implement the plan to develop a Public Education Program. The ***PUBIC EDUCATION PROGRAM PROGRESS REPORT*** on the progress made on the public education program development will be made as part of the Annual Report each year. A proposed ***PUBLIC EDUCATION PROGRAM*** will be submitted with the Annual Report in 2001. The ***PUBLIC EDUCATION PROGRAM*** shall be submitted with the

Annual Report in 2002. Caltrans will begin implementation of the plan in April 2002.

K. PROGRAM EVALUATION AND REPORTING

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision K.

1. Characterization of Discharges: Caltrans shall develop a plan to identify and describe existing major discharges and points of discharge, as defined in 40 CFR 122.26(iv)(d)(1 and 2), to surface water bodies in areas subject to the MS4 permit requirements and to identify and describe other discharge points as funding allows. Caltrans shall also provide information concerning major existing structural controls (such as the location of detention basins, infiltration basins, etc.). Characterization should be done in phases with the highest priority given to discharge points that are part of BMP studies and in areas where these discharges fit into ongoing watershed characterization studies. For discharges that contain pollutants, Caltrans shall investigate the source of the pollutants and, where appropriate, eliminate the IC/ID or implement BMP programs. The plan shall also identify procedures for notifying the RWQCB and affected municipal storm water management agencies of these discharges and future planned discharges and procedures for monitoring and record management. Discharges which Caltrans cannot control, such as discharges from other parties over which Caltrans has no authority, shall be referred to the appropriate regulatory agency for appropriate action. The ***PLAN FOR CHARACTERIZATION STUDIES***, describing how the studies shall be carried out, shall be submitted with the 1999 Annual Report. Characterization studies shall be completed by April 1, 2003.

2. Receiving Water Monitoring: Caltrans has submitted a three-year monitoring strategy that outlines the research monitoring that it intends to undertake in the next three years. The ***MONITORING STRATEGY REPORT UPDATE*** will be updated annually based on the results of previous years' monitoring and in response to the needs of the program and the funding available. The updated Monitoring Strategy Report will be submitted as part of each Annual Report.

    a. Caltrans shall submit to the SWRCB by April 1, 2000 and each April 1 thereafter a ***MONITORING AND REPORTING PROGRAM*** acceptable to the Executive Director that shall identify and justify sampling locations, frequencies, and methods, suite of pollutants to be analyzed, analytical methods, and quality assurance procedures. Alternative monitoring methods (special projects, literature review, visual observations, use of indicator parameters, etc.) may be proposed with justification. Current MS4 Permits for Caltrans have monitoring requirements. Results of the monitoring efforts undertaken under RWQCB MS4 Permits may be submitted to fulfill these monitoring requirements.

    The RWQCB Executive Officers are authorized to require additional monitoring and reporting by Caltrans when additional information is needed to assess

existing or potential adverse impacts by storm water discharges, to evaluate effectiveness of storm water pollution prevention or control measures, or to demonstrate compliance with permit requirements.

3. Compliance Monitoring and Evaluation

a. Caltrans shall prepare a plan to be submitted as part of the Annual Report due April 1, 2000 explaining how the RWQCBs will be notified about noncompliance. The plan shall include the identification in each Office and Region, the parties to notify and receive the notification. The notification shall identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to the modifications by the RWQCB indicating when compliance will be achieved. Noncompliance notifications must be submitted verbally within 5 working days, with written followup within 30 days of identification of noncompliance. (***REPORTING OF NONCOMPLIANCE***)

b. Construction site monitoring and inspections shall be carried out as required by the Construction General Permit or the applicable Lahontan RWQCB Permit.

c. Maintenance Facility Compliance Monitoring

(1) Caltrans is required to conduct periodic inspections. The purpose of the inspections is to identify areas contributing to a discharge of storm water associated with the maintenance facility activities and to evaluate whether control practices to reduce pollutant loadings identified in the FPPP are adequate and properly implemented or whether additional control practices are needed. A record of the inspections must include the date of the inspection, the individual(s) who performed the inspection, and the observations.

(2) Any noncompliance shall be reported to the RWQCB in accordance with the plan to be submitted under Program Evaluation and Reporting Provision K.3.a.

(3) The RWQCB may require Caltrans to conduct additional site inspections, to submit reports and certifications, or to perform sampling and analysis.

(4) Records of all inspections, compliance certifications, and noncompliance reporting must be retained for a period of at least three years. With the exception of noncompliance reporting, Caltrans is not required to submit these records unless otherwise requested.

(5) Monitoring at all maintenance facilities is not required.

d. Overall Management Program Effectiveness:

Caltrans shall perform a self-audit of the storm water program each year to determine (1) if the program is being implemented as required by this NPDES Permit, the SWMP, and the guidance documents prepared by Caltrans; and (2) if the program specified by the SWMP and the guidance documents is adequate. The results of this ***SELF-AUDIT*** shall be submitted by April 1, 2000 and as a part of the Annual Report thereafter to the SWRCB Executive Director. Caltrans may use any method to evaluate program effectiveness and shall identify the direct and indirect measurements that will be used to track the long-term effectiveness. An outline of the proposed audit is to be submitted by February 1 of each year so that the SWRCB and RWQCBs can evaluate the measures to be used.

4. Reporting

Caltrans shall submit 13 copies of an ***ANNUAL REPORT*** to the SWRCB Executive Director by April 1 each year starting on April 1, 2000. The Annual Report shall contain the data and a summary and analysis of the data collected in the previous year. The report due on April 1, 2000 will cover data collected during the winter of 1998-1999. Reports that are required from Caltrans include the items listed in Table 2.

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TABLE 2
COMPILATION OF REPORTING REQUIREMENTS

Provision	Requirement	Date Required
B.9	Comprehensive Nonstorm Water Report	Every Annual Report
E.1, F.1	Revised SWMP, including Revisions to the BMP Programs with Justification and Public Input	Every Annual Report
E.2	Regional Workplans	Every Annual Report
F.2.f	BMP Selection Report	Every Annual Report
F.2.g	New Technology Report	Every Annual Report
G.1.b	Municipal Coordination Plan	April 1, 2000
G.1.b	Municipal Coordination Program Report	Every Annual Report
G.2.b	Analysis of the Adequacy of Legal Authority	Every Annual Report
G.3.b	Fiscal Analysis	90 days from adoption
G.3.b	Fiscal Analysis	3rd and 5th year Annual Report
H.8.a	Notification of Construction	At least 30 days prior to construction
H.8.b	SWPPP	Request by RWQCB
H.8.d	Notice of Completion	Upon final stabilization
I.2.a.(2)	Discharge or Threat of Discharge Notification to MS4 Permittee	Upon discharge or threat of discharge
I.2.a.(3)	Discharge or Threat of Discharge Notification to RWQCB	Upon discharge or threat of discharge
I.2.b.(4)	Report on the IC/ID Program	Every Annual Report
I.2.b.(5)	Development of IC/ID Program	April 1, 2000
I.3.c	FPPP	Request by RWQCB
J.3.a	Plan for Development and Implementation of a Public Education Program	April 1, 2000
J.3.c	Public Education Program Progress Report	Every Annual Report
J.3.c	Public Education Program	April 1, 2003
K.1	Plan for Characterization Studies	April 1, 2000
K.2	Monitoring Strategy Report Update	Every Annual Report
K.2.a	Monitoring and Reporting Program	Every Annual Report
K.3.a	Reporting of Noncompliance	April 1, 2000
K.3.d	Self Audit	Every Annual Report
L.10.a	De-icer Monitoring Proposal	Every Annual Report
L.10.b	De-icer Report	June 1, 2000
M.7	Report of Waste Discharge	180 days prior to expiration of permit

These reporting requirements are contained in the text of the NPDES Permit. If there is a discrepancy between the text of the NPDES Permit and this table, the text of the NPDES Permit contains the requirement.

L. LOCATION SPECIFIC REQUIREMENTS

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision L.

Lahontan Region: The Water Quality Control Plan for the Lahontan Region (Basin Plan) has additional requirements which have been historically applied to Caltrans permits and which apply to this NPDES Permit in the Lahontan Region. These requirements include:

1. Numerical effluent limitations for storm water discharges within the Lake Tahoe Hydrologic Unit, as specified in Table 5.6-1 on page 5.6-4 of the Basin Plan.

2. Caltrans shall comply with all Waste Discharge Prohibitions specified in sections 4.1 and 5.2 of the Basin Plan.

3. The following nonstorm water discharges which are permitted under Nonstorm Water Provision B.2. of this NPDES permit are prohibited within the Lahontan Region:

   a. Water line-flushing discharges.

   b. Ground or surface water pumping discharges associated with construction activities that would violate numerical effluent limitations within the Lake Tahoe Hydrologic Unit or receiving water objectives throughout the Lahontan Region, as specified on pages 3-3 through 3-56 of the Basin Plan.

   c. Potable water resource discharges.

   d. Uncontaminated pumped ground water discharges that would violate numerical effluent limitations within the Lake Tahoe Hydrologic Unit or receiving water objectives throughout the Lahontan Region, as specified on pages 3-3 through 3-56 of the Basin Plan.

   e. Air conditioning condensate discharges (not applicable to vehicles).

4. Storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm (1) within the Lake Tahoe Hydrologic Unit (one inch of rain), (2) within the Truckee River Hydrologic Unit (3/4-inch of rain), (3) within the East Fork Carson River and West Fork Carson River Hydrologic Units (one inch of rain), and (4) within the Mammoth Creek Hydrologic Unit above the 7,000-foot elevation (one inch of rain). All Caltrans facilities within the Lake Tahoe Hydrologic Unit must be retrofitted to comply with this requirement by the Year 2008. If site conditions do not allow for adequate on site disposal, all site runoff must be treated to meet applicable Effluent Limits and/or Receiving Water Limitations specified in the Basin Plan. Runoff in excess of the design storm and generated by the facility or within the project site shall only be discharged to a storm drain or stabilized drainage adequate to convey the 100-year 24-hour flow. The RWQCB Executive Officer may approve alternative mitigation measures.

   All Caltrans facilities within the Lake Tahoe Hydrologic Unit must be retrofitted to comply with this provision by the Year 2008. Caltrans shall continue to participate in the Capital Improvement Program (CIP), as described in volume IV of the CWA Section 208 Water Quality Management Plan (208 Plan). The purpose of the CIP is to identify projects, develop an implementation program, and develop a funding mechanism for storm water runoff and erosion control projects in the Lake Tahoe Hydrologic Unit.

5. All construction/maintenance projects shall comply with Erosion Control Guidelines for the Lake Tahoe Hydrologic Unit, Erosion Control Guidelines for the Truckee River Hydrologic Unit, and Erosion Control Guidelines for the North Lahontan Region where applicable.

6. Caltrans shall inspect active project sites and maintenance facilities prior to, during, and after storms to ensure that BMPs are functioning adequately and preventing the discharge of pollutants to surface waters or storm water conveyance systems that discharge to surface waters.

7. Unless granted a variance by the RWQCB Executive Officer, there shall be neither removal of vegetation nor disturbance of existing ground surface conditions between October 15 of any year and May 1 of the following year, except when there is an emergency situation that threatens the public health or welfare. This prohibition period applies to the Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units and above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region.

8. Project Review Requirements

   a. Caltrans shall participate in early project design consultation for all projects within the Lake Tahoe, Truckee River, and Mammoth Creek Hydrologic Units. This requirement also applies to projects involving more than five acres of soil disturbance or that require a CWA section 404 permit throughout the Lahontan Region. Caltrans shall solicit RWQCB staff review when project development/design is at the 50 percent design level. Consultation with RWQCB staff shall continue throughout the remainder of the design development and environmental review process.

   b. Caltrans shall submit an SWPPP or a Water Pollution Control Plan for RWQCB staff review and approval no later than 30 days prior to beginning construction activities. RWQCB staff's proposed modifications shall be included within the plans prior to beginning construction activities.

9. Snow and Ice Control

   Where abrasives and/or de-icing agents are used on highways within the Lahontan Region, the following shall be recorded:

   a. Location of the source of abrasives materials.

   b. Types and chemistry of de-icing agents.

      (1) Deicing salt shall be analyzed for: total phosphorus, total nitrogen, iron, and percent NaCl.

(2) Alternative deicers shall be analyzed for: total nitrogen, and total phosphorus.

c. Type and chemistry of abrasives with the gradation and percent organic matter. Gradation and percent organic matter shall be determined from composite samples. The composite samples shall be taken from one stockpile that represents all deliveries from the originating source. Composite samples shall be taken from every new delivery from a new originating source.

(1) Abrasives shall be analyzed for: volatile solids, iron, total nitrogen, total phosphorus, and total reactive phosphorus.

d. Volume of abrasives and deicing agents used on individual highway's segments.

10. Reporting/Notification Issues

a. Caltrans shall submit a monitoring program proposal that evaluates the effectiveness of BMPs used to recover abrasives and deicing materials and that evaluates the impacts of abrasives and deicing materials on surface waters within the Lake Tahoe Hydrologic Unit. The proposal shall include monitoring locations and sampling and analysis methodologies. The proposal shall be submitted within 180 days of adoption of this NPDES Permit for review and approval by the Lahontan RWQCB Executive Officer. (***DEICER MONITORING PROPOSAL***)

b. A report shall be submitted, as part of the Annual Report each year describing the results of the abrasives and deicing materials analysis and the annual results of the above-referenced monitoring program involving BMP effectiveness and surface water impacts. The report shall also include a summary of Caltrans CIP activities, including progress on implementing the CIP, and project effectiveness. Project effectiveness has historically been documented with photographs including preproject photographs, photographs taken during the spring following project completion, and photographs taken two years following project completion. If photographs or project site inspections indicate that the project is not fully meeting project objectives, Caltrans shall include within the report a corrective action plan and a schedule that will meet the project objectives. (***DEICER REPORT***)

11. Caltrans shall immediately notify the RWQCB by telephone, not later than 24 hours, whenever an adverse condition occurs as a result of a discharge with written confirmation following within two weeks. An adverse condition includes, but is not limited to, a serious violation or a serious threatened violation of conditions specified in this NPDES Permit, significant discharges of spills of petroleum products or toxic chemicals, or serious damage to control facilities that could affect compliance.

M. OTHER PROVISIONS

1. Caltrans shall ensure that all personnel whose decisions or activities could affect storm water quality are familiar with the contents of this NPDES Permit.

2. Caltrans shall comply with all conditions and limitations of this NPDES Permit upon adoption of this NPDES Permit. Any NPDES Permit noncompliance constitutes a violation of the CWA and the CWC and is grounds for enforcement action pursuant to the CWA and CWC, NPDES Permit termination, or denial of a renewal application.

3. This NPDES Permit does not authorize violation of any federal, State, or local law or regulation.

4. Caltrans shall properly operate and maintain at all times any facilities and systems of treatment and control (and related appurtenances) which are installed or used by Caltrans to achieve compliance with the conditions of this NPDES Permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

5. This NPDES Permit does not convey any property rights of any sort or any exclusive privileges, authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations.

6. Caltrans shall comply with the Standard Provisions for NPDES Permit found at 40 CFR 122.41 and 40 CFR 122.42(c).

7. This NPDES Permit expires five years from date of adoption, 2004, and Caltrans shall file a complete Report of Waste Discharge in accordance with Title 23, CCR, at least 180 days in advance of such date as an application for issuance of a new Board Order. (***REPORT OF WASTE DISCHARGE***)

8. This Board Order shall serve as an NPDES Permit pursuant to section 402 of the Federal CWA, as amended, and shall become effective at the end of ten (10) days from the date of the Board Meeting which this NPDES Permit was adopted by the SWRCB, provided that the Regional Administrator, USEPA, has no objections.

9. This NPDES Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by Caltrans for an NPDES Permit modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any NPDES Permit condition. Causes for modification include the promulgation of new regulations or adoption of new regulations by the SWRCB or the RWQCBs, including revisions to the RWQCB Basin Plans.

10. Signatory Requirements

a. All permit applications, reports, or information submitted to the RWQCB, SWRCB, and/or USEPA shall be signed by either a principal Executive Officer, Executive Director, or ranking elected official. [40 CFR 122.22(a)]

b. All reports required by this NPDES Permit and other information requested by the RWQCB, SWRCB, or US EPA shall be signed by a person described in Other Provisions 10.a. of this Provision or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in Other Provisions 10.a. of this Provision;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) The written authorization is submitted to the RWQCB. [40 CFR 122.22(b)]

c. Changes to authorization: If an authorization under Other Provisions 10.b. of this Provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Other Provisions 10.b. of this Provision must be submitted to the RWQCB prior to or together with any reports, information, or applications to be signed by an authorized representative. [40 CFR 122.22(c)].

d. Certification: Any person signing a document under Other Provisions 10.a. or b. of this Provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is true, accurate, and complete to the best of my knowledge and belief. I

am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of knowing violations. [40 CFR 122.22(d)]

e. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this NPDES Permit, including monitoring reports or reports of compliance or noncompliance, upon conviction, shall be punished by a fine of not more than $10,000 per violation, imprisonment for not more than two years per violation, or by both.

CERTIFICATION

The undersigned, Administrative Assistant to the SWRCB, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 15, 1999.

AYE: James M. Stubchaer
Mary Jane Forster
John W. Brown
Arthur G. Baggett, Jr.

NO: None

ABSENT: None

ABSTAIN: None

Maureen Marché
Administrative Assistant to the Board

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, CA 94612
Phone: 510-622-2300 • Fax: 510-622-2460
http://www.waterboards.ca.gov/sanfranciscobay/

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

ORDER NO. R2-2008-0062
NPDES NO. CA0030171

ATTACHMENT 18

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**Allied Defense Recycling**
Name of Facility	**Mare Island Shipyard**
Facility Address	**Southeast corner of 9th St. and Nimitz Ave**
	Vallejo, CA 94592
	Solano County

The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Mare Island Strait water used to flood dry dock No. 2	38º,05',55"N	122º,16',89"W	Mare Island Strait
002	Mare Island Strait water used to flood dry dock No. 3	38º,05',43"N	122º,15',53"W'	Mare Island Strait

This Order was adopted by the Regional Water Board on:	**July 9, 2008**
This Order shall become effective on:	**September 1, 2008**
This Order shall expire on:	**August 31, 2013**
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a minor discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

I, Bruce Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 9, 2008.

_____

Bruce H. Wolfe, Executive Officer

Table of Contents

List of Attachments

I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	Allied Defense Recycling
Name of Facility	Mare Island Shipyard
Facility Address	Southeast corner of 9th St. and Nimitz Ave Vallejo, CA 94592
Facility Contact, Title, and Phone	Gary Whitney, Manager, (707) 769-7824
Mailing Address	903 Eastman Lane Petaluma, CA 94952
Type of Facility	Ship building and repair, marine wrecking and salvage
Facility Design Flow	Not applicable

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Regional Water Board), finds:

A. Background. Allied Defense Recycling (hereinafter the Discharger), by application dated December 6, 2007, has applied for issuance of Waste Discharge Requirements (WDRs) and a permit to discharge wastewaters into Mare Island Strait under the National Pollutant Discharge Elimination System (NPDES).

B. Facility Description. The Discharger proposes to operate the facility located on the eastern waterfront of Mare Island immediately adjacent to Mare Island Strait.[1] Facilities on the site include two dry docks, one located northeast of the intersection of Nimitz Avenue and 9th Streets (dry dock #2) and one at Nimitz Avenue and 10th Streets (dry dock #3), several warehouses, and two pump buildings. Untreated wastewater, which would be discharged to Mare Island Strait, a water of the United States, would consist of water from Mare Island Strait that washes over the dry docks when they are flooded to carry in ships for repair or dismantling. The Discharger does not propose to operate dry docks #1 or #4.

While a dry dock is flooded, a ship would be brought into the dry dock and positioned onto support blocks. The dock end would be closed with a caisson (dry dock door) and the dock would be emptied of all water via a sump pump that discharges the water back into Mare Island Strait. The vessel would be left standing freely on the support blocks.

Water that seeps in from gaps in the dry dock walls and caisson, and storm water runoff from the surface of dry docks would be collected in dry dock sumps. This

[1] **Mare Island Strait** is a channel separating Mare Island and the mainland of Vallejo, in Solano County. The strait was formerly used by the Mare Island Naval Base until its closure in 1995. The strait is the mouth of the Napa River and is tributary to Carquinez Strait.

water would not come in contact with the Mare Island Strait water regulated by this Order and would be required to be disposed of in compliance with applicable Federal, State, and local discharge laws and requirements. Storm water from other portions of the facility would be covered under the Statewide Industrial Storm Water Permit (NPDES No. CAS000001) and may be subject to additional requirements established by the local sanitary district that owns and operates the municipal separate storm sewer system.

Attachment B provides a location map of the area around the facility.
Attachment C provides a wastewater flow schematic of the facility.

C. **Legal Authorities.** This Order is issued pursuant to Section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and California Water Code (CWC) Chapter 5.5, Division 7. It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to CWC Article 4, Chapter 4 division 7 of the Water Code (commencing with Section 13260).

D. **Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application and other available information. The Fact Sheet (**Attachment F**), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. **Attachments A through E, and G** are also incorporated into this Order.

E. **California Environmental Quality Act (CEQA).** Under CWC Section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code Sections 21100-21177.

F. **Technology-Based Effluent Limitations.** Section 301(b) of the CWA and implementing U.S. EPA permit regulations at section 122.44, Title 40 of the Code of Federal Regulations,[2] require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. Because there are no technology-based effluent limitations or new source performance standards established for the shipyard industry, the Regional Water Board may use best professional judgment (BPJ) pursuant to authority established by CWA Section 402(a)(1)(B) and in accordance with requirements established at 40 CFR 125.3. This Order does not include technology-based effluent limitations; a rationale is included in the Fact Sheet (**Attachment F**).

G. **Water Quality-Based Effluent Limitations.** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve

[2] All further statutory references are to Title 40 of the Code of Federal Regulations (40 CFR) unless otherwise indicated.

applicable water quality standards. This Order does not include water quality-based effluent limitations; a rationale is included in the Fact Sheet (**Attachment F**).

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Best Management Practices. Best Management Practices (BMPs) are defined by NPDES regulations at 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304(e), and in accordance with NPDES regulations at 40 CFR 122.44 (k), BMPs can be used to control or abate the discharge of pollutants in several circumstances, including, when numeric effluent limitations are infeasible.

I. Water Quality Control Plans. *The Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board, the Office of Administrative Law, and U.S. EPA, as required. The Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which establishes as State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on San Francisco Bay receiving waters, total dissolved solids levels in the Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. Therefore, the MUN designation is not applicable to Mare Island Strait. Beneficial uses applicable to Mare Island Strait are provided in Table 1.

Table 1. Basin Plan Beneficial Uses of Mare Island Strait

Discharge Point	Receiving Water Name	Beneficial Uses
001 and 002	Mare Island Strait	• Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Fish Spawning (SPAWN) • Navigation (NAV) • Preservation of Rare and Endangered Species (RARE) • Water Contact Recreation (REC1) • Non Contact Water Recreation (REC2) • Wildlife Habitat (WILD)

Requirements of this Order implement the Basin Plan.

J. National Toxics Rule (NTR) and California Toxics Rule (CTR). U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. About forty criteria in the NTR apply in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that apply in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

K. State Implementation Policy. On March 2, 2000, the State Water Resources Control Board (State Water Board) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by U.S. EPA through the NTR and to the priority pollutant objectives established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

L. Compliance Schedules and Interim Requirements. Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit under certain conditions. Where permitted by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised

water quality objective. Because this Order does not include effluent limitations but requires implementation of BMPs to control the discharge of pollutants, compliance schedules and interim effluent limitations do not apply and, therefore, are not included in this Order.

M. Anti-Degradation Policy. 40 CFR 131.12 requires that State water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Board Resolution 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet (**Attachment F**), the permitted discharge is consistent with the anti-degradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16.

N. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Since this is a new permit, there are no previous permit limitations and therefore there is no backsliding.

O. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

P. Monitoring and Reporting. 40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting monitoring results. CWA Sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and state requirements. This Monitoring and Reporting Program is provided in **Attachment E**.

Q. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that apply under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions

applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (**Attachment F**).

R. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet (**Attachment F**).

S. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the public hearing are provided in the Fact Sheet (**Attachment F**).

IT IS HEREBY ORDERED that, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, provisions of the federal CWA, and the regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater to waters of the State at a location or in a manner different from that described in this Order is prohibited.

B. Discharge of sanitary wastewater to waters of the State is prohibited.

C. Discharge of solid materials and solid wastes, spent abrasive and paint residues, and marine fouling organisms to waters of the State is prohibited.

D. Discharge of floating oil or other floating material from any activity that may cause deleterious bottom deposits, turbidity, or discoloration in surface waters is prohibited.

E. The discharge of ship bilge or ballast water outside of the dry docks is prohibited.

F. Discharge of any pressure washing water, boiler drainage, or any process water that is used or accumulated in the dry dock during repair, building, salvage, or dismantling is prohibited.

G. Discharge of seepage water from the dry dock walls or caisson, and storm water runoff from the surface of the dry docks when a vessel is being processed is not authorized by this Order, and is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS—DISCHARGE POINTS 001 AND 002

1. The Discharger shall prevent or minimize the discharge of pollutants from Discharge Points 001 and 002 through implementation of a Best Management

Practices/Pollution Prevention (BMP/PP) Program, as described by provision VI.C.2, below.

2. Prior to flooding any portion of the dry docks, the Discharger shall remove spent abrasives, paint residues, particulates, wastes, and other debris from those portions of the dry dock floors that are reasonably accessible to a degree achievable by scraping, broom cleaning, pressure washing, or other methods that are appropriate for removing these pollutants. This provision shall not apply in cases wherein a vessel must be introduced into the dry dock on an emergency basis, such as to prevent sinking or leakage of oil or other hazardous materials. The Discharger shall notify the Regional Water Board's spill hotline at (510)622-2369, of such emergency circumstances.

3. The Discharger shall perform regular cleaning of the dry dock floor while work is being conducted, to minimize the potential for pollutants to enter the sump via storm water runoff or by accidental ship discharge.

V. RECEIVING WATER LIMITATIONS

Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this Order.

1. The discharge of waste shall not cause the following conditions to exist in receiving waters:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam.

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels.

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin.

   e. Toxic or other deleterious substances to be present in concentrations or quantities that could cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or that render any of these organisms unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limitations to be exceeded in receiving waters within 1 foot of the water surface:

a. Dissolved Oxygen	5.0 mg/L, minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
b. Dissolved Sulfide	Natural background levels (0.1 mg/L, maximum)
c. pH	The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
d. Un-ionized Ammonia	0.025 mg/L as N, annual median, 0.4 mg/L as N, maximum
e. Nutrients	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board, State Water Board, or U.S. EPA as required by the CWA and regulations adopted thereunder.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all U.S. EPA Standard Provisions for NPDES permits included in **Attachment D** of this Order.

2. The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (**Attachment G**), including any amendments thereto. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall prevail. Duplicative requirements in the federal Standard Provisions in VI.A.1 (**Attachment D**) and the regional Standard Provisions (**Attachment G**) are not separate requirements. A violation of a duplicative requirement does not constitute two separate violations.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in **Attachment E** of this Order. The Discharger shall also comply with the requirements contained in *Self-Monitoring Program, Part A, August 1993* (**Attachment G**).

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

b. If new or revised water quality objectives (WQOs) or total maximum daily limits (TMDLs) come into effect for San Francisco Bay and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs and waste load allocations in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator or other water quality study provides a basis for determining that a permit condition(s) should be modified.

d. If an administrative or judicial decision on a separate NPDES permit or WDR addresses requirements similar to this discharge.

e. Or as otherwise authorized by law.

The Discharger may request permit modification based on any of the conditions above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

2. Best Management Practices/Pollution Prevention Program

The Discharger shall develop and implement a Best Management Practices/Pollution Prevention (BMP/PP) Program, prior to commencement of dry dock activities. No later than 6 months after the effective date of this Order, the Discharger shall submit a BMP Plan that describes implementation of the BMP/PP Program. The Discharger must review and update its BMP Plan at least annually as specified in VI.C.2.d, below.

The purpose of the BMP/PP Program is the pro-active identification of sources of wastes and pollutants associated with dry dock activities, the identification of practices to reduce or prevent the discharge of those wastes and pollutants to surface waters. The BMP Plan shall be consistent with the

general guidance contained in U.S. EPA's *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004) and shall include the following elements:

a. Characterization of Discharges

The BMP Plan shall include a narrative assessment of all industrial activities conducted at the site, potential pollutant sources associated with each activity, and the nature of the pollutants that could be discharged.

b. Identification of Best Management Practices

The BMP Plan shall include a narrative description of the BMPs to be implemented at the site to control the discharge of pollutants. BMPs shall be identified and described, including the anticipated effectiveness of each BMP, for each potential pollutant source.

The Discharger shall consider:

i. Preventative BMPs - measures to reduce or eliminate the generation of pollutants and waste.

ii. Control BMPs - measures to control or manage pollutants and waste after they are generated and before they come into contact with water, including measures to prevent leaks and spills and measures to contain dust and particulate material.

iii. Treatment BMPs - measures to remove pollutants and waste from water released to the dry dock sumps.

iv. Response BMPs - measures to respond to leaks, spills, and other releases with containment, control, and cleanup measures to prevent or minimize the potential for the discharge of pollutants and to minimize the adverse effects of such discharges.

v. Response to Sampling Data BMPs - measures that will be taken in response to data collected from the MRP including trigger values for specific response.

The BMP Plan shall include BMPs for the following shipyard activities, if applicable, at the dry dock facility.

- Control of solid materials
- Abrasive blasting
- Oil, grease, and fuel transfers
- Paint and solvent use
- Dust and overspray
- Over water or near-shore activities

- Storm drain inlet protection
- Hose, piping, and fitting use and maintenance
- Segregation of water from debris
- Hydroblasting
- Material and waste storage
- Sewage disposal
- Gray water disposal
- Oily bilge and ballast water disposal
- Graving dock cleanup
- Discharges resulting from wind, tidal action, and site runoff
- Leaks and spills
- Waste characterization and disposal
- Recovery of ship launch grease/wax
- Hull cleaning
- Other activities with potential to result in discharges of wastes or pollutants to the receiving water

c. Site Map

The BMP Plan shall include a site map that includes:

i. Site boundaries and structures.

ii. The locations of site runoff collection and conveyance systems and points of discharge.

iii. Areas of industrial activity where discharges originate. The Site Map shall include the locations of material handling and processing areas; waste treatment, storage, and disposal areas; dust or particulate generating areas; cleaning and rinsing areas; and other areas of industrial activity that are potential pollutant sources.

d. Annual Comprehensive Site Compliance Evaluation

The Discharger shall conduct at least one comprehensive site compliance evaluation per year to determine the effectiveness of the BMP/PP Program. Evaluations shall be conducted not less than 8 or more than 16 months apart. The BMP Plan shall be revised, as appropriate, and any revisions implemented within 30 days of the evaluation. Evaluations shall include the following:

i. A review of all visual observation records, inspection records, and sampling and analysis results.

ii. A visual inspection of all potential pollutant sources for evidence of, or the potential for, the discharge of pollutants.

iii. A review and evaluation of all BMPs to determine whether the BMPs are adequate, properly implemented, and maintained, or whether additional BMPs are needed.

iv. An evaluation report that includes (i) identification of personnel performing the evaluation, (ii) date of the evaluation, (iii) necessary program revisions, (iv) incidents of non-compliance and the corrective actions taken, and (v) certification that the Discharger is in compliance with this Order. If the above certification cannot be provided, the evaluation report shall include an explanation as to why the Discharger is not in compliance with this Order. The evaluation report shall be submitted as part of the annual report (as described in the Monitoring and Reporting Program (MRP) (**Attachment E**))**,** be retained for at least five years, and be signed and certified in accordance with the requirements of this Order.

At least 30 days prior to conducting the Comprehensive Site Compliance Evaluation, the Discharger shall notify the appropriate Regional Water Board NPDES staff person of its intent to conduct the evaluation, so that a representative of the Regional Water Board may accompany the Discharger during its facility inspection and its review of BMPs.

3. Contingency Plan

a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (**Attachment G**). Resolution 74-10 requires that measures be taken under such circumstances as power outage, employee strikes, earthquakes, fires, and vandalism to ensure that wastes are not unnecessarily discharged. The discharge of pollutants in violation of this Order, where the Discharger has failed to develop or adequately implement a contingency plan, will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to CWC Section 13387.

As Resolution 74-10 is directed primarily toward dischargers that collect and treat wastewaters before discharging (e.g., municipal wastewater treatment plants), the Discharger shall develop and maintain a Contingency Plan to ensure implementation of BMPs under such circumstances as contemplated by the Resolution. The Contingency Plan must address all applicable requirements of Resolution 74-10, including the potential circumstances of electric power failure, as well as circumstances of potential concern at this site, such as flooding of Mare Island Strait and large storm events. Safeguards shall be described to ensure that, in the event of such circumstances, the Discharger will comply with the terms and conditions of this Order.

b. The Discharger shall regularly review and update, as necessary, the Contingency Plan so it remains useful and relevant to current equipment and operations. The Discharger shall review the plan annually and update it as necessary.

c. As part of the Annual Report (as described in the MRP, VIII. Reporting Requirements (**Attachment E**)), the Discharger shall describe the current status of its Contingency Plan review and update. The description should include a list of revisions or a statement that no changes are needed.

4. Storm Water Requirements

a. To address storm water runoff from the facility and the surface of the dry docks when vessel processing activities are not occurring and after the dry dock has been cleaned in accordance with the BMP Plan, the Discharger shall obtain coverage under the Statewide Industrial Storm Water Permit (NPDES General Permit No. CAS000001) for Discharges of Storm Water Associated with Industrial Facilities.

b. Storm water runoff from the surface of the dry docks collected in the dry dock sumps when a vessel is being processed in a dry dock, or after a vessel is processed but before the dry dock is cleaned in accordance with the BMP Plan, shall be collected and disposed of in accordance with applicable Federal, State, and local discharge laws and requirements (e.g., discharged to the local sanitary sewer if authorized or stored for disposal off-site in some other authorized manner). This provision applies to dry docks 1-4 because dry docks No. 1 and 2 and dry docks No. 3 and 4 are hydraulically connected (i.e., one system collects and drains all runoff from dry docks 1 and 2, and another system collects and drains all runoff from dry docks No. 3 and No. 4). Therefore, if a vessel is being processed in dry dock No.2 or No. 3 (or the dry dock has not yet been cleaned after vessel processing), runoff from dry dock No. 1 or No. 4, respectively, shall be collected and disposed of in accordance with applicable Federal, State, and local discharge laws and requirements.

c. As indicated above, the Discharger shall develop a Contingency Plan to describe actions to comply with this Order if and when large storm events occur.

ATTACHMENT A—DEFINITIONS

Arithmetic Mean (μ) also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL) the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL) the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (*CV*) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the Order), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Initial Dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges,

turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and it's associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

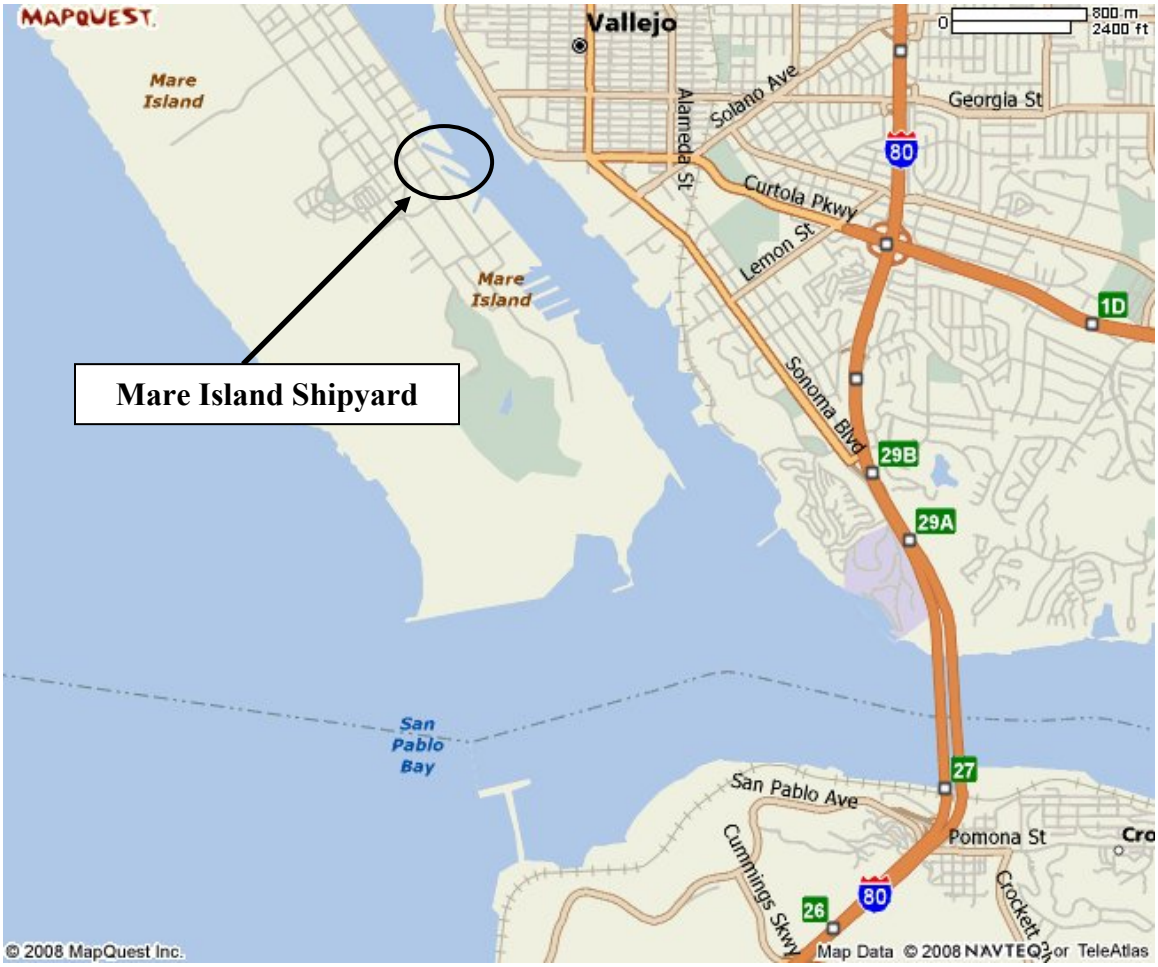
x is the observed value;

μ is the arithmetic mean of the observed values; and

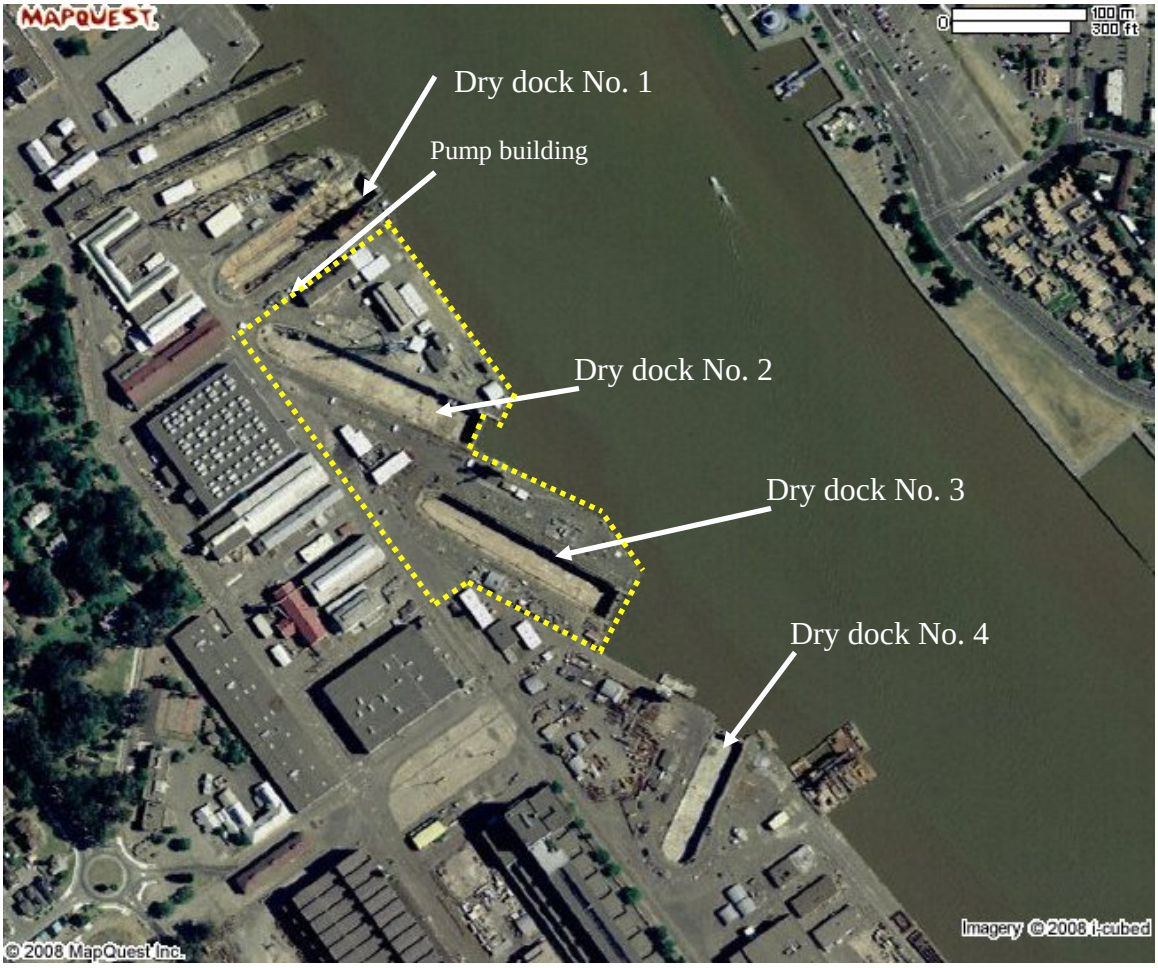
n is the number of samples.

Storm water is storm water runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

ATTACHMENT B—TOPOGRAPHIC MAP



ATTACHMENT C—FLOW SCHEMATIC



Dotted line = Site boundary

ATTACHMENT D—FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS—PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [40 CFR §122.41 (a)].

2. The Discharger shall comply with effluent standards or prohibitions established under CWA Section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA Section 405 (d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [40 CFR §122.41 (a) (1)].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [40 CFR §122.41 (c)].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [40 CFR §122.41 (d)].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [40 CFR §122.41 (e)].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [40 CFR §122.41 (g)].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [40 CFR §122.5 (c)].

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, the U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [40 CFR §122.41 (i)] [CWC 13383 (c)]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [40 CFR §122.41 (i) (1)];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [40 CFR §122.41 (i)(2)];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [40 CFR §122.41 (i) (3)];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [40 CFR §122.41 (i) (4)].

G. Bypass

1. Definitions

   a. Bypass means the intentional diversion of waste streams from any portion of a treatment facility [40 CFR §122.41 (m) (1) (i)].

   b. Severe property damage means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [40 CFR §122.41 (m) (1) (ii)].

2. Bypass not exceeding limitations—The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions—Permit Compliance I.G.3 and I.G.5 below [40 CFR §122.41 (m) (2)].

3. Prohibition of bypass—Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [40 CFR §122.41 (m) (4) (i)]:

    a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [40 CFR §122.41 (m) (4) (A)];

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [40 CFR §122.41 (m) (4) (B)]; and

    c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision—Permit Compliance I.G.5 below [40 CFR §122.41 (m) (4) (C)].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above [40 CFR §122.41 (m) (4) (ii)].

5. Notice

    a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [40 CFR §122.41 (m) (3) (i)].

    b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [40 CFR §122.41 (m) (3) (ii)].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [40 CFR §122.41 (n) (1)].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for

noncompliance, is final administrative action subject to judicial review [40 CFR §122.41 (n) (2)].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [40 CFR §122.41 (n) (3)]:

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset [40 CFR §122.41 (n) (3) (i)];

   b. The permitted facility was, at the time, being properly operated [40 CFR §122.41 (n) (3) (i)];

   c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b [40 CFR §122.41 (n) (3) (iii)]; and

   d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above [40 CFR §122.41 (n) (3) (iv)].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [40 CFR §122.41 (n) (4)].

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [40 CFR §122.41 (f)].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [40 CFR §122.41 (b)].

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [40 CFR §122.41 (l) (3)] [40 CFR §122.61].

III. STANDARD PROVISIONS—MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [40 CFR §122.41 (j)(1)].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR §122.41 (j) (4)] [40 CFR §122.44 (i) (1) (iv)].

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [40 CFR §122.41 (j) (2)].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [40 CFR §122.41 (j) (3) (i)];
2. The individual(s) who performed the sampling or measurements [40 CFR §122.41 (j) (3) (ii)];
3. The date(s) analyses were performed [40 CFR §122.41 (j) (3) (iii)];
4. The individual(s) who performed the analyses [40 CFR §122.41 (j) (3) (iv)];
5. The analytical techniques or methods used [40 CFR §122.41 (j) (3) (v)]; and
6. The results of such analyses [40 CFR §122.41 (j) (3) (vi)].

C. Claims of confidentiality for the following information will be denied [40 CFR §122.7 (b)]:

1. The name and address of any permit applicant or Discharger [40 CFR §122.7 (b) (1)]; and

2. Permit applications and attachments, permits and effluent data [40 CFR §122.7 (b) (2)].

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, SWRCB, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order [40 CFR §122.41 (h)] [CWC 13267].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below (40 CFR §122.41 (k).).

2. All permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall

operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, State Water Board or U.S. EPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22 (c)].

5. Any person signing a document under paragraph (2) or (3) of this provision shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [40 CFR §122.22 (d)].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [40 CFR §122.41 (l) (4)].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices [40 CFR §122.41 (l) (4) (i)].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [40 CFR §122.41 (l) (4) (ii)].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [40 CFR §122.41 (l) (4) (iii)].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [40 CFR §122.41 (l) (5)].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR §122.41 (l) (6) (i)].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [40 CFR §122.41 (l) (6) (ii)]:

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order [40 CFR §122.41 (l) (6) (ii) (A)].

   b. Any upset that exceeds any effluent limitation in this Order [40 CFR §122.41 (l) (6) (ii) (B)].

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [40 CFR §122.41 (l) (6) (ii) (C)].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [40 CFR §122.41 (l) (6) (iii)].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [40 CFR §122.41 (l) (1)]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29 (b) [40 CFR §122.41 (l) (1) (i)]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42 (a) (1) (see Additional Provisions—Notification Levels VII.A.1) [40 CFR §122.41 (l) (1) (ii)].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may

justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [40 CFR §122.41 (l) (1) (iii)].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [40 CFR §122.41 (l) (2)].

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E [40 CFR §122.41 (l) (7)].

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information [40 CFR §122.41 (l) (8)].

VI. STANDARD PROVISIONS—ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [40 CFR §122.42 (a)]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42 (a) (1)]:

    a. 100 micrograms per liter (µg/L) [40 CFR §122.42 (a) (1) (i)];

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [40 CFR §122.42 (a) (1) (ii)];

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42 (a) (1) (iii)]; or

d. The level established by the Regional Water Board in accordance with 40 CFR §122.44 (f) [40 CFR §122.42 (a) (1) (iv)].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42 (a) (2)]:

a. 500 micrograms per liter (µg/L) [40 CFR §122.42 (a) (2) (i)];

b. 1 milligram per liter (mg/L) for antimony [40 CFR §122.42 (a) (2) (ii)];

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42 (a) (2) (iii)]; or

d. The level established by the Regional Water Board in accordance with 40 CFR §122.44 (f) [40 CFR §122.42 (a) (2) (iv)].

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E—MONITORING AND REPORTING PROGRAM

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ATTACHMENT E—MONITORING AND REPORTING PROGRAM

40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC Sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of Self-Monitoring Program, Part A, adopted August 1993 (SMP). The MRP and SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required prior to each flooding of a dry dock, and shall include collection of both wipe and rinseate samples. All analyses shall be conducted using current U.S. EPA methods, methods approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board's Quality Assurance Program.

C. *Minimum Levels.* For reasonable potential monitoring, analyses shall be conducted using the commercially available and reasonably achievable detection levels that are lower than applicable water quality objectives or criteria, or the effluent limitations, whichever are lower. The purpose is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels (MLs) given below.

MLs are the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed. All MLs are expressed as µg/L.

Table E-1 lists the test methods the Discharger may use for reasonable potential monitoring.

Table E-1. Test Methods and Minimum Levels for Pollutants to be Monitored

		Water Monitoring					Sediment Monitoring[b]	
		Types of Analytical Methods [a] Minimum Levels (µg/L)						
		GC	FAA	ICP MS	SPGFAA	CVAA	Method	Detection Limit (mg/kg dry wt.)
1	Antimony			0.5	5		NA	NA
2	Arsenic			2	2		6020	2.0
3	Beryllium			0.5	1		NA	NA
4	Cadmium			0.25	0.5		6020	0.3
5a	Chromium III		5				[c]	[c]
5b	Chromium VI		5				6020[c]	5.0[c]
6	Copper			0.5	2		6020	5.0
7	Lead			0.5	2		6020	5.0
8	Mercury			0.5		0.2[d]	7471	0.02
9	Nickel			1	5		6020	5.0
10	Selenium			2	5		7740	0.1
11	Silver			0.25	2		6010	0.2
12	Thallium			1	5		NA	NA
13	Zinc			1	10		6020	1.0
119-125	PCBs	0.5					8082	20 µg/kg
NA	Tributyltin						[e]	10 µg/kg

NA - Not applicable

[a] Analytical Methods / Laboratory techniques are defined as follows:
Because receiving water samples will be saline, the Discharger must instruct its analytical laboratory to correct for that matrix so as to avoid positive interference.
GC= Gas Chromatography
FAA = Flame Atomic Absorption
ICPMS= Inductively Coupled Plasma/Mass Spectrometry
SPGFAA= Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9)
CVAA= Cold Vapor Atomic Absorption

[b] Trace metal analysis shall include the individual concentrations of each individual metal. Method 3050 shall be used in preparation for all metal analyses except mercury. Preparation procedures for mercury are included in Method 7471.

[c] Sediment samples shall me analyzed for total recoverable chromium.

[d] Use ultra-clean sampling (U.S. EPA 1669) to the maximum extent practicable and ultra-clean analytical methods (U.S. EPA 1631) for mercury monitoring.

[e] Concentrations of tributyltin shall be analyzed using protocol approved by the Regional Water Board or as described in Rice C.D., F.A. Espourteille, and R.J. Huggett. 1987. Analysis of tributyltin in estuarine sediments and oyster tissue, *Crassostrea virginica*. Applied Organometallic Chemistry, 1:541-544.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the BMPs, discharge specifications, and other requirements in this Order.

Table E-2. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	M-001	Floor and wall area of dry dock No. 2, that is flooded to bring in vessels for processing
002	M-002	Floor and wall area of dry dock No. 3, that is flooded to bring in vessels for processing
Receiving Water	R-001	Mare Island Strait water in the immediate proximity of the dry dock No. 2 discharge point (where Mare Island Strait water pumped from the dry dock is discharged back to Mare Island Strait)
Receiving Water	R-002	Mare Island Strait water in the immediate proximity of the dry dock No. 3 discharge point (where Mare Island Strait water pumped from the dry dock is discharged back to Mare Island Strait)
Receiving Water	R-003	Mare Island Strait water in the immediate proximity of the dry dock No. 2 entry (caisson)
Receiving Water	R-004	Mare Island Strait water in the immediate proximity of the dry dock No. 3 entry (caisson)

III. INFLUENT MONITORING REQUIREMENTS

Influent monitoring is not required. Receiving water monitoring requirements will provide data that are representative of receiving water and influent water quality.

IV. MONITORING REQUIREMENTS FOR DRY DOCK SURFACES–LOCATIONS M-001 AND M-002

1. Prior to flooding of any portion of dry dock No. 2 or No. 3, the Discharger shall record the results of a pre-docking inspection noting any conditions requiring correction, such as the presence of waste materials that can be removed with BMPs. If any are noted, the Discharger must correct the condition prior to flooding. Inspection reports shall identify the inspector's name, title, and any corrective actions taken.

2. The Discharger shall collect wipe samples from the wall and floor surfaces of the dry dock prior to flooding. This shall include collection of samples from floor and wall locations of the dry dock selected using a randomized grid procedure. At least 3 samples shall be collected from a representative area, or 6 samples from the entire dry dock.

3. The Discharger shall collect rinseate samples prior to dry dock flooding using a rinseate composite sampling method. This shall include collection of samples from floor and wall locations of the dry dock selected using a

randomized grid procedure. At least 3 samples shall be collected from a representative area, or 6 samples from the entire dry dock. Multiple samples shall be composited into one sample for analysis. Deionized water reconstituted to have a similar hardness and pH as the receiving water, shall be used as the rinseate. Samples shall be representative of the water that washes over the dry dock surfaces and shall be analyzed in accordance with the following schedule.

Table E-3. Monitoring of Wipe and Rinseate Samples

Parameter	Units		Minimum Sampling Frequency
	Wipe	Rinseate (composite samples)	
Total Suspended Solids	NA	mg/L	Prior to flooding of dry dock
Settleable Solids	NA	ml/L	Prior to flooding of dry dock
Oil and Grease	NA	mg/L	Prior to flooding of dry dock
Metals [1]	µg/sq ft	µg/L	Prior to flooding of dry dock
PCBs	µg/sq ft	µg/L	Prior to flooding of dry dock
Tributyltin	µg/sq ft	µg/L	Prior to flooding of dry dock
Remaining CTR priority pollutants	µg/sq ft	µg/L	Once per permit term

[1] Metals are those identified as Compound Nos. 1 – 13 by the California Toxics Rule at 40 CFR 131.38(b) – antimony, arsenic, beryllium, cadmium, chromium (3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Analytical results shall be reported as total recoverable metal.

V. SEDIMENT MONITORING

1. Once during the term of this Order the Discharger shall collect sediment samples at dry dock Nos. 2 and 3, and at a control/background location. The Discharger shall analyze the sediment samples for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, PCBs, and tributyltin.

2. Sediment samples shall be collected near the caisson and at the point of discharge. At least 2 surface grab samples shall be collected from each of these areas and composited into one sample for each area (i.e., two samples from the area near the caisson composited into one sample and two samples from the area of the discharge composited into one sample). The composited sediment samples shall be submitted for analysis.

3. Sediment sampling methods shall result in undisturbed samples from the top 2–3 centimeters of sediment. The control/background location shall be selected to be representative of background conditions within Mare Island Strait and in an area where sediment is not affected by activity at the Discharger's facility (i.e., in a location that can be presumed to be free from the effects of the Discharger's activities and other potential impacts). Results

for the control/background location shall be reported with the other analytical results.

4. Specify reporting date or timeframe that clearly describes when the samples were taken.

Table E-4. Sediment Monitoring[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency
Metals [2,3]	µg/L	grab	Once during permit term
PCBs	µg/L	grab	Once during permit term
Tributyltin	µg/L	grab	Once during permit term

[1]For each sample also report:
Grain size (%)
Total solids (%)
Total Organic Carbon (%)
Dissolved Sulfides (mg/kg)
Ammonia (mg/kg)
[2] Metals include arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.
[3]Analytical results shall be reported as total recoverable metal.

VI. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations R-001 and R-002

Following discharge from discharge point 001 or 002, the Discharger shall collect a receiving water sample at Monitoring Location R-001 or R-002, respectively. The location of Monitoring Location R-001 or R-002 shall be recorded and reported with sample results. Receiving water samples shall be analyzed in accordance with the schedule in Table E-5.

B. Monitoring Locations R-003 and R-004

Prior to flooding dry dock No.2 or No.3, the Discharger shall collect a receiving water sample at either Monitoring Location R-001 or R-002, respectively. The location of Monitoring Location R-001 or R-002 shall be recorded and reported with sample results. Receiving water samples shall be analyzed in accordance with the schedule in Table E-5.

Table E-5. Receiving Water Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	
			R-001 R-002	R-003 R-004
Total Suspended Solids	mg/L	grab	E	O
Settleable Solids	ml/L	grab	E	O
Oil and Grease	mg/L	grab	E	O
Metals [1]	µg/L	grab	E	O
PCBs	µg/L	grab	E	O
Tributyltin	µg/L	grab	E	O

E = each time wastewater is discharge from discharge point 001 or 002
O= once each year
[1] Metals are those identified as Compound Nos. 1 – 13 by the California Toxics Rule at 40 CFR 131.38(b) – antimony, arsenic, beryllium, cadmium, chromium (3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Analytical results shall be reported as total recoverable metal.

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports

1. The Discharger shall submit annual Self Monitoring Reports (SMRs), which shall include the results of all required monitoring as well as the report of the annual Comprehensive Site Compliance Evaluation, and any updates to the BMP Plan and Contingency Plan. Annual reports shall be due on February 1 following each calendar year.

2. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), at the address listed below:

   California Regional Water Quality Control Board
   San Francisco Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   Attention: NPDES Wastewater Division

3. Monitoring periods for all required monitoring shall commence upon the effective date of this Order.

4. The Discharger shall report with each dry dock water and receiving water sample result the applicable Minimum Level (ML) and the current laboratory

Method Detection Limit (MDL) as determined by procedures in 40 CFR Part 136.

5. The Discharger shall arrange all reported data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with waste discharge requirements.

6. Water quality data shall be reported in the first Self Monitoring Report to be submitted following receipt of the analytical data. The Discharger shall discuss the water quality data as it reflects the effectiveness of the facility's BMP Program.

7. The Discharger shall attach a cover letter to its Self Monitoring Report. The information contained in the cover letter shall clearly identify violations of the WDRs, discuss corrective actions taken or planned, and the proposed time schedule of corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

8. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

9. As described above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

   DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   State Water Resources Control Board
   Discharge Monitoring Report Processing Center
   Post Office Box 671
   Sacramento, CA 95812

ATTACHMENT F—FACT SHEET

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ATTACHMENT F—FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the specific legal requirements and detailed technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility, assuming the Discharger obtains a lease for the property.

CIWQS Place ID	717105
Discharger	Allied Defense Recycling
Name of Facility	Mare Island Shipyard
Facility Address	Southeast corner of 9th St. and Nimitz Ave Vallejo, CA 94592 Solano County
Facility Contact, Title and Phone	Gary Whitney, Manager, (707) 769-7824
Authorized Person to Sign and Submit Reports	Gary Whitney, Manager
Mailing Address	903 Eastman Lane Petaluma, CA 94952
Billing Address	Same as mailing address
Type of Facility	Dry dock
Classification	Minor
Threat to Water Quality	3
Complexity	C
Ownership Type	Private
Pretreatment Program	No
Reclamation Requirements	No
Baseline Flow	N/A
Design Flow	N/A
Watershed	San Pablo Bay
Receiving Water	Mare Island Strait
Receiving Water Type	Marine

Allied Defense Recycling (Discharger) proposes to operate the Mare Island Shipyard facility at the eastern waterfront of Mare Island immediately adjacent to Mare Island Strait.[1] This facility is owned and managed by Lennar Mare Island, LLC. The Discharger applied for issuance of Waste Discharge Requirements (WDRs) and a permit to discharge wastewaters into the Napa River under the National Pollutant Discharge

[1] **Mare Island Strait** is a channel separating Mare Island and the mainland in Vallejo, in Solano County. The strait was formerly used by the Mare Island Naval Base until its closure in 1995. The strait is the mouth of the Napa River and is tributary to Carquinez Strait.

Elimination System (NPDES) on December 6, 2007. This Order regulates the discharge of wastewaters to Mare Island Strait, a water of the United States, from the Mare Island Shipyard facility.

II. FACILITY DESCRIPTION

A. Treatment Process Description

The United States Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as minor.

The facility has two dry docks, with capacities of up to 17.8 and 19.5 million gallons, which are used to conduct ship repairing, building, salvage, and dismantling operations. Water from Mare Island Strait would be used to flood the dry docks, which would allow vessels to be moved into the dry docks for processing. While the dock is flooded, a ship would be brought into the dry dock and positioned onto support blocks. The dock end would be closed with a caisson (dry dock door) and the dock would be emptied of all water via a sump pump that discharges the water back into Mare Island Strait. The vessel would be left standing freely on the support blocks. Each dry dock would be flooded about six times per year, with each flooding cycle lasting approximately twelve hours.

The Discharger plans to conduct ship repair, building, salvage, and dismantling activities in the dry docks. These activities can involve many sources of pollutants including blast abrasives, paint chips, cutting and welding slag, paper trash, discarded materials, sediment, marine growth, oil, solvents, and plastics. When work on a vessel is complete, the dry dock floor would be swept, and any debris that ends up on the dry dock floor would be removed prior to the next cycling of the dry dock. Any residual particulate matter remaining on the floor of the dry dock after cleanup, has the potential to come in contact with Mare Island Strait water when the dry dock is flooded to accommodate another vessel.

Wastewaters discharged to Mare Island Strait would not receive treatment and would occur through the outfalls described in the following table. Process water used in ship dismantling operations, seepage water from the dry dock walls, seepage water from the caisson, and storm water runoff from the surface of the dry docks as described in section VI.C.4 of this Order, could also be collected in the dry dock sumps. This water would be required to be collected and disposed of in accordance with applicable Federal, State, and local discharge laws and requirements. Storm water runoff from other portions of the facility would be covered under the Statewide Industrial Storm Water Permit (NPDES No. CAS000001) and may be subject to additional requirements established by the local sanitary District responsible for the municipal separate storm sewer system.

B. Discharge Points and Receiving Waters

The locations of the Facility's outfalls and its receiving water are shown in Table F-1.

Table F-1. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Mare Island Strait water used to flood dry dock No. 2	38 º,05 ',55 "N	122 º,16 ',89 "W	Mare Island Strait
002	Mare Island Strait water used to flood dry dock No. 3	38 º,05 ',43 "N	122 º,15 ',53 "W	Mare Island Strait

Attachment B to the Order is a topographic map that shows the regional location of the Mare Island Shipyard facility. **Attachment C** to the Order is a wastewater flow schematic of the facility.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

This is a new permit; therefore, there are no existing requirements.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to Clean Water Act (CWA) Section 402 and implementing regulations adopted by U.S. EPA and California Water Code (CWC) Chapter 5.5, Division 7. It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements pursuant to CWC Article 4, Chapter 4, for discharges not subject to regulation under CWA Section 402.

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Region* (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to Mare Island Strait are as follows.

Table F-2. Basin Plan Beneficial Uses of Mare Island Strait

Discharge Point	Receiving Water Name	Beneficial Uses
001 and 002	Mare Island Strait	• Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Fish Spawning (SPAWN) • Navigation (NAV) • Preservation of Rare and Endangered Species (RARE) • Water Contact Recreation (REC1) • Non Contact Water Recreation (REC2) • Wildlife Habitat (WILD)

Requirements of this Order specifically implement the applicable water quality control plans.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. The CTR was adopted on May 18, 2000, and amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the U.S. EPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP requires that dischargers submit data sufficient to determine which priority pollutants require water quality-based effluent limitations (WQBELs) and to calculate the effluent limitations. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.

4. **Anti-Degradation Policy.** 40 CFR 131.12 requires that State water quality standards include an anti-degradation policy consistent with federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The permitted discharge is consistent with the anti-degradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

6. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E to the Order) establishes monitoring and reporting requirements to implement federal and State requirements.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State, pursuant to Section 303(d) of the CWA, which requires identification of specific water bodies that are not expected to meet water quality standards after implementation of technology-based effluent limitations on point sources. The pollutants impairing Carquinez Strait include chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, selenium, and dioxin-like and non dioxin-like PCBs.

The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated wasteload allocations (WLAs). The SIP and U.S. EPA regulations also require that final concentration-based WQBELs be included for all pollutants having reasonable potential to cause or contribute to an exceedence of applicable water quality standards (having reasonable potential or RP). The Order does not include effluent limitations for any 303(d) listed pollutants because there are no existing effluent data for this Discharger upon which to base a reasonable potential analysis.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, nonconventional, and toxic pollutants that are discharged into the waters of the United States. The control of the discharge of pollutants is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the NPDES regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs may be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator

parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

Specific factors affecting the development of limitations and requirements in this Order are discussed in Section IV.C.2 of this Fact Sheet.

A. Discharge Prohibitions

Following are the bases for the discharge prohibitions established by this Order.

1. Prohibition A (no discharges other than as described in the permit): This prohibition is based on CWC section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge and subsequently in the Order, are prohibited.

2. Prohibitions B (no discharge of sanitary wastewater): Direct discharge of domestic sanitary waste to Waters of the State is prohibited. This prohibition is in accordance with the Basin Plan's Discharge Prohibition 15 (Basin Plan Table 4-1), which prohibits raw sewage or any waste failing to meet waste discharge requirements to any waters of the Basin.

3. Prohibition C (no discharge of solids and particulates): The direct discharge of particulate and paint residues from the dry dock, ships, or piers, to Waters of the State is prohibited. The placement of spent abrasive and paint residue in areas where the materials may be washed into Waters of the State by storm water runoff or by tide or wave action is prohibited. This prohibition is in accordance with Sections 3.3.13 and 3.3.14 of the Basin Plan.

4. Prohibition D (no discharge of floating materials): The discharge of floating oil or other floating material from any activity that may cause deleterious bottom deposits, turbidity or discoloration in surface waters is prohibited. This is in accordance with Section 3.3.6 of the Basin Plan.

5. Prohibition E (no discharge of residual ship bilge or ballast water, from vessels while they are in dry dock): The ballast water must be in compliance with California regulations (Marine Invasive Species Act). This requires exchange at sea for ocean-going vessels. While the ship is dry-docked, if repairs and maintenance of ship's ballast tanks are necessary, any residual ballast water and all sedimentation that may exist must be removed to on-shore facilities for processing. This prohibition is appropriate as the Discharger has not applied to discharge this waste. Because this discharge is prohibited there are no provisions in the permit to ensure protection of water quality from such discharges.

6. Prohibition F (no discharge of process wastewater): Discharge of pressure washing water, boiler drainage water, or any process water that is used or

accumulated in the dry docks to Waters of the State during the dismantling or repair processes is prohibited. This prohibition is appropriate as such wastes have potential to have pollutants at levels exceeding water quality standards, and so they should not be discharged untreated.

7. Prohibition G (no discharge of storm water or seepage water): Discharge of storm water runoff from the surface of the dry docks as described in Section VI.C.4 of this Order, or seepage water from the dry dock walls or caisson, to Waters of the State is prohibited. This prohibition is appropriate as such wastes have potential to have pollutants at levels exceeding water quality standards, and so they should not be discharged untreated.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) is a standard for the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) that represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. CWA Section 402(a)(1) and 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or

pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3. No numeric technology-based effluent limitations are established for this Order. Narrative (BMP-based) requirements are based on BPT, BAT, BCT, and BPJ. In setting these limits, the factors specified in section 125.3(d), as shown in the table below, were considered.

Table F-3. Factors Considered Pursuant to 40 CFR 125.3(d)

Factors	Considerations
Cost relative to benefits	The cost of imposing these limits is reasonable given that passive treatments (BMPs) that prevent or reduce discharge of pollutants are relatively low cost alternatives to performing more aggressive wastewater treatment technologies.
Comparison of cost and pollutant reductions from publicly owned treatment works to cost and pollutant reductions from BMPs	The wastewater is Mare Island Strait water that washes over the dry docks that have been cleaned according to the BMP Plan. No additional wastewater treatment to remove pollutants occurs. Therefore, the cost is less than if it were treated at a publicly owned treatment works.
Age of equipment and facilities	Required equipment (brooms, vacuums, shrouding, etc.) can be easily and inexpensively purchased and replaced. BMPs can be planned according to the placement of existing facilities.
Process employed	Proper planning and scheduling of activities are the most important factors when implementing BMPs.
Engineering aspects of various controls	No engineering controls are required.
Process changes	No specific processes are required (proper planning and scheduling of activities is most important).
Non-water quality environmental impacts	No non-water quality impacts are foreseeable.

2. Applicable Technology-Based Effluent Limitations

There are no applicable technology-based ELGs established for the shipyard industry. The Regional Water Board established narrative (BMP-based) limitations because numeric limits are not practicable. The narrative limits in this Order are based on similar facilities and BPJ.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified by the NPDES regulations at 40 CFR 122.44(d)(1)(i), permits must include WQBELs for pollutants, including toxicity, that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any water quality standard. The process for determining

reasonable potential (the reasonable potential analysis) and calculating WQBELs, when necessary, is intended to protect the designated uses of the receiving water as specified in the Basin Plan and achieve applicable water quality objectives and criteria.

2. Reasonable Potential Analysis (RPA)

a. Water Quality Criteria (WQC) and Objectives (WQOs). The RPA uses Basin Plan WQOs, including narrative toxicity objectives in the Basin Plan, and applicable WQC in the CTR and NTR, or site-specific objectives (SSOs) if available, after adjusting for site-specific hardness and translators, if applicable.

b. Methodology. The RPA uses the methods and procedures prescribed in Section 1.3 of the SIP. Regional Water Board staff has analyzed available information, including the nature of facility operations and the shipyard industry in general, to determine if the discharges show reasonable potential with respect to the governing WQOs or WQC.

c. Effluent and Background Data. Because this is a new permit, discharge data are not available.

d. RPA Determination. For Discharges 001 and 002, based on industry practices and operations at similar facilities, the Regional Water Board has determined that there is reasonable potential for residual material to be washed into the receiving water when dry docks are flooded. The Regional Water Board has also determined that such particulate material may contain metals common to the shipyard industry, PCBs, and tributyltin at concentrations that could cause or contribute to exceedances of applicable WQOs or criteria for metals from the NTR, CTR, and/or the Basin Plan.

This determination of reasonable potential is based, in large part, on monitoring performed at San Francisco Drydock, located on the western waterfront of San Francisco Bay at the foot of 20th Street in San Francisco. Monitoring of water at that facility that washed over the dry docks when the docks were submerged, showed elevated levels of metals being discharged to the Bay, particularly arsenic, copper, lead, nickel, and zinc.

This determination is also based on descriptions by the Oregon Department of Environmental Quality and U.S. EPA Office of Enforcement and Compliance Assurance of the generation of pollutants during vessel maintenance and overhaul work—pollutants that can remain in residual amounts on dry dock surfaces after cleanup (*Best Management Practices for Oregon Shipyards*, Oregon Department of Environmental Quality, 2000; *U.S. EPA Office of Compliance Sector Notebook Project: Profile of the Shipbuilding and Repair Industry*, U.S. EPA Office of Enforcement and Compliance Assurance, 1997), and of the paint and preservative coatings

found on both interior and exterior surfaces of a ship—particularly on older ships, paint may contain toxic compounds, such as PCBs, heavy metals (e.g., lead, barium, cadmium, chromium, and zinc), and pesticides (*A Guide for Ship Scrappers*, U.S. Office of Enforcement and Assurance, 2000, EPA 315-B-00-001).

3. Water Quality Based Effluent Limitations

The RPA shows that discharges from Outfall Nos. 001 and 002 exhibit reasonable potential for metals, PCBs, and tributyltin.

The Regional Water Board has determined that the establishment and enforcement of numeric effluent limitations for Outfall Nos. 001 and 002 is infeasible due to the difficulties of collecting representative effluent samples and of determining and applying concentration and mass emission limitations. The Regional Water Board has further determined that such discharges are most appropriately controlled by Best Management Practices (BMPs) instead of numeric effluent limitations. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304(e), and in accordance with NPDES regulations at 40 CFR 122.44(k), BMPs can be used to control or abate the discharge of pollutants when numeric effluent limitations are infeasible.

The Monitoring and Reporting Program, which accompanies this Order as **Attachment E**, requires monitoring for metals, suspended solids, settable solids, oil and grease, PCBs, and tributyltin in rinseate samples, and monitoring for metals, PCBs, and tributyltin in dry dock surface wipe samples and sediments, to assess the effectiveness of the required BMP/PP Program. Monitoring of the remaining CTR priority pollutants in rinseate and wipe samples once during the term of this Order is also required. The Regional Water Board will also review the monitoring data to assess performance. If the data show that BMPs do not adequately control discharges of pollutants, the Order can be reopened to include numeric effluent limitations and/or other conditions, as necessary. Monitoring data will also be considered at the time of permit reissuance.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations are based on applicable water quality standards contained in Chapter 3 of the Basin Plan.

VI. MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires all NPDES permits to specify recording and reporting of monitoring results. CWC Sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program, **Attachment E** of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following text provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Influent Monitoring

Influent monitoring will not be required because receiving water monitoring requirements will provide data that is representative of receiving water and influent water quality.

B. Dry Dock Surface Monitoring

This Order requires monitoring of the dry dock surfaces prior to flooding, to evaluate the effectiveness of the BMP/PP Program. Wipe and rinseate samples must be analyzed for thirteen metals (antimony, arsenic, beryllium, cadmium, chromium(III), chromium (VI), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc), PCBs, tributyltin, and other remaining CTR priority pollutants. Rinseate samples must also be analyzed for settleable and total suspended solids, and oil and grease. Monitoring for these constituents is based on the Regional Water Board's RPA, as discussed in Section IV.C. of this Fact Sheet.

When updating the BMP Plan, the Discharger must consider these data to assess the effectiveness of the facility's BMP/PP Program.

C. Sediment Monitoring

This Order requires collection of sediment samples outside of the caisson to evaluate the effectiveness of the BMP/PP Program. Sediment samples must be analyzed for metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc), PCBs, and tributyltin.

When updating the BMP Plan, the Discharger must consider these data to assess the effectiveness of the facility's BMP/PP Program.

D. Receiving Water Monitoring

This Order requires receiving water monitoring to establish background water quality conditions and evaluate the impact of the discharge on the receiving water. Because receiving water quality will remain relatively stable in Mare Island Strait, the frequency of receiving water monitoring for background purposes is limited to once per year. The frequency of monitoring in the vicinity of the discharge points is required each time there is a discharge.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR 122.41and 40 CFR 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in **Attachment D** to the Order. The Order also includes several provisions that are standard to NPDES permits issued by the Regional Water Board.

B. Special Provisions

1. Reopener Provisions

The Order may be modified in accordance with the requirements set forth at 40 CFR 122 and 124 to include appropriate conditions or limits based on newly available information, or to implement any, new State water quality objectives that are approved by the U.S. EPA. If a need for additional effluent limitations or permit conditions becomes apparent during the term of the Order, the Order will be reopened to incorporate such limitations and/or conditions.

2. Best Management Practices and Pollution Prevention

The Regional Water Board has determined that all discharges from the Mare Island Shipyard are most appropriately controlled by BMPs and pollution prevention. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304(e), and in accordance with NPDES regulations at 40 CFR 122.44(k), BMPs can be used to control or abate the discharge of pollutants when numeric effluent limitations are infeasible.

3. Contingency Plan, Review and Status Reports

This provision is based on the Basin Plan, the requirements of 40 CFR §122. See Section VII.B.3 of this Order for specific requirements. This provision is incorporated to address potential uncontrollable circumstances, such as flooding of Mare Island Strait that may result in flow into the dry docks during vessel processing, and flooding of the dry docks during large storm events.

4. Storm Water Requirements

This provision is required because storm water runoff from the dry docks and other portions of the facility has the potential to have pollutants at levels exceeding water quality standards, and so they should not be discharged untreated.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as a NPDES permit for Allied Defense Recycling. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the permittee and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them

with an opportunity to submit their written comments and recommendations. Notification was provided through a public notice in the Vallejo Times Herald.

B. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to Heather Ottaway at the Regional Water Board at the address above on the cover page of this Order.

To be considered by the Regional Water Board and to receive a written response from the Regional Water Board staff, written comments must be received at the Regional Water Board offices by 5:00 p.m. on June 13, 2008.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: July 8 and 9, 2008
Time: 9:00 AM
Location: Auditorium, Elihu Harris State Building
1515 Clay Street
Oakland, California 94612

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge and WDRs. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. The Regional Water Board's web address is http://www.waterboards.ca.gov/sanfranciscobay/, where the current agenda and any changes in dates and locations will be posted.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information on file may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (510)622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding these WDRs should contact the Regional Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Heather Ottaway at (510)622-2116 or by email at hottaway@waterboards.ca.gov.

ATTACHMENT G– STANDARD PROVISIONS AND REPORTING REQUIREMENTS and SELF-MONITORING PROGRAM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

August 1993

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

For

NPDES SURFACE WATER DISCHARGE PERMITS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

2. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order.

3. Duty to Comply

   a. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in a Board adopted Order, discharger must comply with the new standard or prohibition. The Board will revise or modify the Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.

   b. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the discharger must comply with the new standard. The Board will revise and modify this Order in accordance with such more stringent standards.

   c. The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 122.41(f)]

4. Duty to Mitigate

   The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood of adversely affecting public health or the environment, including such accelerated or additional monitoring as requested by the Board or Executive Officer to determine the nature and impact of the violation. [40 CFR 122.41(d)]

5. Pursuant to U.S. Environmental Protection Agency regulations the discharger must notify the Regional Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the limits specified in 40 CFR 122.42(a).

6. The discharge of any radiological, chemical, or biological warfare agent waste is prohibited.

7. All facilities used for transport, treatment, or disposal of wastes shall be adequately protected against overflow or washout as the result of a 100-year frequency flood.

8. Collection, treatment, storage and disposal systems shall be operated in a manner that precludes public contact with wastewater, except where excluding the public is inappropriate, warning signs shall be posted.

9. Property Rights

   This Order and Permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from liabilities under federal, state or local laws, nor create a vested right for the discharge to continue the waste discharge or guarantee the discharger a capacity right in the receiving water. [40 CFR 122.41(g)]

10. Inspection and Entry

    The Board or its authorized representatives shall be allowed:

    a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the order and permit;

    b. Access to and copy at, reasonable times, any records that must be kept under the conditions of the order and permit;

    c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the order and permit; and

d. To photograph, sample, and monitor, at reasonable times for the purpose of assuring compliance with the order and permit or as otherwise authorized by the Clean Water Act, any substances or parameters at any locations. [40 CFR 122.41(i)]

11. Permit Actions

This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State and/or Federal regulations. Cause for taking such action includes, but is not limited to any of the following:

a. Violation of any term or condition contained in the Order and Permit;

b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts;

c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and

d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

12. Duty to Provide Information

The discharger shall furnish, within a reasonable time, any information the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit. The discharger shall also furnish to the Board, upon request, copies of records required to be kept by its permit. [40 CFR 122.41(h)]

13. **Bypass** (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Board may take enforcement action against the discharger for plant bypass unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The discharger submitted advance notice of the need for a bypass to the Board. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The discharger shall submit notice of an unanticipated bypass as required by 40 CFR 122.41(l)(6) (24 hour notice), as required in paragraph E.6.d.

The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation.

14. Availability

A copy of this permit shall be maintained at the discharge facility and be available at all times to operating personnel.

15. Continuation of Expired Permit

This permit continues in force and effect until a new permit is issued or the Board rescinds the permit. Only those dischargers authorized to discharge under the expiring permit are covered by the continued permit.

These provisions apply to facilities which do not direct all storm water flows to the wastewater treatment plant headworks.

a. to identify pollutant sources that may affect the quality of storm water discharges; and
b. to identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing spill prevention plan as required in accordance with Provision E.5. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing: the wastewater treatment facility process areas, surface water bodies (including springs and wells), and the discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points to waters of the State.

The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing:
   i. Storm water conveyance, drainage, and discharge structures;
   ii. An outline of the storm water drainage areas for each storm water discharge point;
   iii. Paved areas and buildings;
   iv. Areas of pollutant contact with storm water or release to storm water, actual or potential, including but not limited to outdoor storage, and process areas, material loading, unloading, and access areas, and waste treatment, storage, and disposal areas;
   v. Location of existing storm water structural control measures (i.e., berms, coverings, etc.);
   vi. Surface water locations, including springs and wetlands;
   vii. Vehicle service areas.

c. A narrative description of the following:
   i. Wastewater treatment process activity areas;
   ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;
   iii. Material storage, loading, unloading, and access areas;
   iv. Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharge;
   v. Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm Water Pollution Prevention Personnel

Identify specific individuals (and job titles) who are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good Housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce potential for pollutants to enter the storm drain conveyance system.

c. Spill Prevention and Response

Identify areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, cleanup equipment and procedures should be identified, as appropriate. The necessary equipment to implement a clean up shall be available and personnel trained in proper response, containment and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source Control

Source controls, such as elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling all storm drain inlets with "No Dumping" signs, isolation/separation of industrial from non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm Water Management Practices

Storm water management practices are practices other than those which control the sources of pollutants. They include treatment/conveyance structures such as drop inlets, channels, retention/detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and Erosion Control

Measures to minimize erosion around the storm water drainage and discharge points such as riprap, revegetation, slope stabilization, etc. shall be described and implemented.

g. Employee Training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training should address spill response, good housekeeping, and material management practices. New employee and refresher training schedules should be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water

discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorder. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up to date. This results of this review shall be reported in the annual report to the Board on October 1 of each year.

1. When sewage sludge is either sent to a landfill or applied to land as a soil amendment it should be monitored as follows:

a. Sewage sludge disposal shall be monitored at the following frequency:

Metric tons sludge/365 days	**Frequency**
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

b. Sludge shall be monitored for the following constituents:

Land Application: As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, Zn
Municipal Landfill: Paint filter test (pursuant 40 CFR 258)
Sludge-only Landfill: As, Cd, Ni, (if no liner and leachate system)

2. The sludge must meet the following requirements prior to land application. The discharger must either demonstrate compliance or, if it sends the sludge to another party for further treatment and/or distribution, must give the recipient the information necessary to assure compliance.

a. Exceptional quality sludge: Sludge that meets the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8) is exceptional quality sludge and does not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

b. Sludge used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. It shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality), Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

c. Sludge used for lawn or home gardens must meet exceptional quality sludge limits.

d. Sludge that is sold or given away in a bag or other container shall meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached that explains Table IV (see 503.14). The sludge must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

1. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment disposal and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the Board. [40 CFR 122.41(e)]

2. Safeguard to electric power failure:

   a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Board.

   b. Should the Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Board that the existing safeguards are inadequate, provide to the Board and the U.S. Environmental Protection Agency a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and

conditions of this permit. The schedule of compliance shall, upon approval of the Board Executive Officer, become a condition of the Order.

c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Board within ninety (90) days of the material change.

3. POTW facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

4. Signatory Requirements

a. All reports required by the order and permit and other information requested by the Board or USEPA Region 9 shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person. [40 CFR 122.22(b)]

b. Certification

All reports signed by a duly authorized representative under Provision E.1.a. shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. [40 CFR 122.22(d)]

5. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in any report, it shall promptly submit the missing or correct information. [40 CFR 122.41(l)(8)]

6. False Reporting

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall be subject to enforcement procedures as identified in Section F of these Provisions.

7. Transfers

   a. This permit is not transferable to any person except after notice to the Board. The Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

   b. Transfer of control or ownership of a waste discharge facility under an National Pollutant Discharge Elimination System permit must be preceded by a notice to the Board at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Board. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Board's receipt of a complete application for waste discharge requirements and an NPDES permit.

8. Spill Prevention and Contingency Plans

   The discharger shall file with the Board, for Executive Officer review and approval within ninety (90) days after the effective date of this Order, a technical report or a statement that the existing plan(s) was reviewed and updated, as appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:

   a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

   b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

   c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

   This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

9. Compliance Reporting

a. Planned Changes

The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

b. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance

c. Anticipated Non-compliance

All POTWs must provide adequate notice to the Board of:

i. Any introduction of new pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants.

ii. Any substantial or material change in the volume or character of pollutants being introduced into that POTW by an input source at the time of issuance of the permit.

Adequate notice shall include information on the quality and quantity of influent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

d. Non-compliance Reporting (Twenty-four hour reporting:)

i. The discharger shall report any noncompliance that may endanger health or the environment. All pertinent information shall be provided orally within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within five working days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

ii. The following shall be included as information that must be reported within 24 hours under this paragraph:

(1) Any unanticipated bypass that exceeds any effluent limitation in the permit.

(2) Any upset that exceeds any effluent limitation in the permit.

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed in this permit to be reported within 24 hours.

(4) The Board may waive the above-required written report on a case-by-case basis.

1. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the Board.

2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.

3. The Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Board orders.

4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.

5. A discharger seeking to establish the occurrence of any upset (See Definitions, G. 24) has the burden of proof. A discharger who wishes to establish the affirmative defense of any upset in an action brought for noncompliance shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

   a. an upset occurred and that the permittee can identify the cause(s) or the upset;

   b. the permitted facility was being properly operated at the time of the upset;

   c. the discharger submitted notice of the upset as required in paragraph E.6.d.; and

   d. the discharger complied with any remedial measures required under A.4.

No determination made before an action for noncompliance, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

In any enforcement proceeding, the discharger seeking to establish the occurrence of any upset has the burden of proof. [40 CFR 122.41(n)]

6. Bypass means the intentional diversion of waste streams from any portion of treatment facility.

7. Daily discharge means:

   a. For flow rate measurements, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

   b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

8. Daily Maximum Limit means the maximum acceptable daily discharge. For pollutant measurements, unless otherwise specified, the results to be compared to the daily maximum limit are based on composite samples.

9. DDT and Derivatives shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.

10. Duly authorized representative is one whose:

    a. Authorization is made in writing by a principal executive officer or ranking elected official;

    b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

    c. Written authorization is submitted to the USEPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Board and USEPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.

11. Hazardous substance means any substance designated under 40 CFR 116 pursuant to Section 311 of the Clean Water Act.

12. HCH shall mean the sum of the alpha, beta, gama (Lindane), and delta isomers of hexachlorocyclohexane.

13. Inadequately Treated Waste is wastewater receiving partial treatment but failing to meet discharge requirements.

14. Incompatible pollutants are:

    a. Pollutants which create a fire or explosion hazard in the POTW;

    b. Pollutants which will cause corrosive structural damage to the POTW, or wastewaters with pH lower than 5.0 pH units, unless the facilities are specifically designed to accommodate such wastewater;

    c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

    d. Any pollutant, including oxygen-demanding pollutants (e.g., BOD) released into the wastewater system at a flow rate and/or pollutant concentration which will cause interference with the POTW.

    e. Heat in amounts which will inhibit biological activity in the POTW and result in interference, or heat in such quantities that the temperature at the POTW treatment plant exceeds 40^{o}C (104^{o}F) unless the works is designed to accommodate such heat or the Board approves alternate temperature limits.

15. Indirect discharger means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.

16. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

17. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

In which 'N' is the number of samples analyzed in any calendar day. 'Q_i' and 'C_i' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples which may be taken in any calendar day. If a composite sample is taken, 'C_i' is the concentration measured in the composite sample and 'Q_i' is the average flow rate occurring during the period over which samples are composited. The daily concentration measured over any calendar day of all constituents shall be determined from the flow- weighted average of the same constituents in the combined waste streams as follows:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t}\left(\sum_{i=1}^{N} Q_i C_i\right)$$

In which 'N' is the number of component waste streams. 'Q' and 'C' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Q_t' is the total flow rate of the combined waste streams.

18. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in paragraph above, using the effluent concentration limit specified in the order and permit for the period and the specified allowable flow. (Refer to Section C of Part A of Self- Monitoring Program for definitions of limitation period)

19. Overflow is defined as the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g. through manholes, at pump stations, and at collection points) upstream from the plant headworks or from any treatment plant facilities.

20. POTW means Publicly Owned Treatment Works.

21. POTW Removal efficiency is expressed as the percentage of the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities. Removal efficiencies of a treatment plant shall be determined using monthly averages of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

    Removal Efficiency (%) = 100 X [1-(**Effluent Conc./Influent Conc.**)]

    When preferred, the discharger may substitute mass loadings and mass emissions for the concentrations.

22. Priority pollutants are those constituents referred to in 40 CFR S122, Appendix D and listed in the USEPA NPDES Application Form 2C, (dated 6/80) Items V-3 through V-9.

23. Sludge means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from, or created in wastewater by the unit processes of a treatment system. It also includes but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow/underflow in the solids handling parts of the wastewater treatment system.

24. Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

25. Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR S401.15.

26. Total Identifiable Chlorinated hydrocarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other identifiable chlorinated hydrocarbons.

27. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.

28. Untreated waste is defined as raw wastewater.

29. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

30. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

August 1993

SELF-MONITORING PROGRAM
PART A

NPDES PERMITS

A. BASIS AND PURPOSE

Reporting responsibilities of waste dischargers are specified in Sections 13225(a),13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitorig program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regiional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed in according to the 40 CFR S136 or other methods approved and specified by the Executive Officer of this Regional Board (See Part B).

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS) or a laboratory waived by the Executive Officer from obtaining a certification for these analyses by the DOHS. The director of the laboratory whose name appears on the certification or his/her laboratory supervisor who isdirectly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance/quality contro1procedures in his or her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The discharger is required to perform sampling and analyses according to the schedule in Part B in accordance with the following conditions:

1. Influent

Composite samples of influent shall be collected on varying days selected at random and shall not include any plant recirculation or other sides stream wastes. Deviation from this must be approved by the Executive Officer.

2. Effluent

a. Composite samples of effluent shall be collected on days coincident with influent composite sampling unless otherwise stipulated. At least one sampling day in each seven shall reflect one day of weekend discharge, one day of peak loading and during major unit operation shutdown or startup. The Executive Officer may approve an alternative sampling plan if it is demonstrated to the EO's satisfaction that expected operating conditions for the facility warrant a deviation from the standard sampling plan.

b. Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.

c. Fish bioassay samples shall be collected on days coincident with effluent composite sampling.

1) Bioassay tests should be performed on effluent samples after chlorination-dechlorination.

2) Total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet the specified percent survival.

d. If two consecutive samples of a constituent monitored on a weekly or monthly basis in a 30 day period exceed the monthly average effluent limit for any parameter, (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the sampling frequency shall be increased to daily until the additional sampling shows that the most recent 30-day moving average is in compliance with the monthly average limit.

e. If any maximum daily limit is exceeded, the sampling frequency shall be increased to daily until two samples collected on consecutive days show compliance with the maximum daily limit.

f. If the final or intermediate results of any single bioassay test indicate a threatened violation (i.e. the percentage of surviving test organisms is less than the required survival percentage), a new test will begin and the discharger shall investigate the cause of the mortalities and report the finding in the next self-monitoring report.

g. Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be collected at least every 30 minutes until compliance is achieved.

h. When any type of bypass occurs, composite samples shall be collected on a daily basis for all constituents at all affected discharge points which have effluent limits for the duration of the bypass.

3. Storm Water

If all storm water is not directed back to the headworks during the wet season (October 1 to April 30) the discharger shall:

a. Conduct visual observations of the storm water discharge locations on at least one storm event per month that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

b. Measure (or estimate) the total volume of storm water discharge and collect and analyze grab samples of storm water discharge from at least two storm events that produce significant storm water discharge for: oil and grease, pH, total suspended solids (TSS), specific conductance, and toxic chemicals and other pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.

The grab sample(s) shall be taken during the first thirty minutes of the discharge. If the collection of the grab sample(s) during the first 30 minutes is impracticable, grab sample(s) can be taken during the first hour of the discharge, and the discharger shall explain in the annual monitoring report why the grab sample(s) could not be taken in the first 30 minutes.

c. Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May to September) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; and/or analysis and validation of accurate piping schematics. Records shall be maintained of the description of the method used, date of testing, locations observed, and test results.

d. Samples shall be collected from all locations where storm water is discharged. Samples must represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the discharger may sample a reduced number of locations if it is established and documented in the monitoring program that storm water discharges from different locations are substantially identical.

e. Records of all storm water monitoring information and copies of all reports required by this permit shall be retained for a period of at least three years from the date of sample, observation, or report.

4. Receiving Waters:

a. Receiving water samples shall be collected on days coincident with compositesampling of effluent.

b. Receiving water samples shall be collected at each station on each sampling day during the period within 1 hour following low slack water. Where sampling at lower slack water period is not practical, sampling shall be performed during higher slack water period. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated.

c. Samples shall be collected within one foot below the surface of the receiving water body, unless otherwise stipulated.

5. Bottom Sediment Samples and Sampling and Reporting Guidelines

a. Bottom sediment sample means: (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertibrates.
Physical-chemical sample analyses include as a minimum:

1) pH

2) TOC (Total Organic Carbon)

3) Grease analysis:

(a) Mg grease per kg sediment

(b) Percent fraction of hydrocarbon in grease

4) Selected metals (depending on industrial input) mg/kg dry wt (and soluble metals in mg/l).

5) Particle size distribution, i.e. , % sand, % silt-clay

6) Depth of water at sampling station in meters

7) Water salinity and temperature in the water column within one meter of the bottom.

D. STANDARD OBSERVATIONS

1. Receiving Water

a. Floating and suspended materials of waste origin (to include oil, grease, algae, andother macroscopic particulate matter, presence or absence, source, and size of affected area.

b. Discoloration and turbidity: description of color, source, and size of affected area.

c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

d. Evidence of beneficial water use: presence of water–associated waterfowl or wildlife, fishermen, and other recreational activities in the vicinity of the sampling stations.

e. Hydrographic condition:

1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).

2) Depth of water columns and sampling depths.

f. Weather conditions:

1) Air temperatures.

2) Wind – direction and estimated velocity.

3) Total precipitation during the previous five days and on the day of observation.

2. Wastewater Effluent

a. Floating and suspended material of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence

b. Odor: presence or absence, characterization , source, distance of travel.

3. Beach and Shoreline

a. Material of waste origin: presence or absence, description of material, estimated size of affected area, and source.

b. beneficial use: estimate number of people sunbathing, swimming, water-skiing, surfing, etc.

4. Land Retention or Disposal Area

This applies both to liquid and solid wastes confined or unconfined.

a. For each impoundment determine amount of the freeboard at lowest point of dikes confining liquid wastes.

b. Evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (gpm, etc.)

c. Odor: presence or absence, characterization, source, and distance of travel.

d. Estimated number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities

a. Odor: presence or absence, characterization, source, and distance of travel.

b. Weather condition: wind direction and estimated velocity

E. RECORDS TO BE MAINTAINED

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the discharger and accessible (at the waste treatment plant), and retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board or Regional Administrator of the USEPA, Region IX. Such records shall show the following for each sample:

   a. Identity of sampling and observation stations by number.

   b. Date and time of sampling and/or observations.

   c. Method of composite sampling (See Section G -Definition of Terms)

   d. Type of fish bioassay test (96 hour static or flow-through bioassay)

e. Date and time that analyses are started and completed, and name of personnel performing the analyses.

f. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to specific section of Standard Methods is satisfactory.

g. Calculations of results.

h. Results of analyses ard/or observations.

2. A tabulation shall be maintained showing the following flow data for influent and effluent stations and disposal areas:

a. Total waste flow or volume, for each day.

b. Maximum and minimum daily flows for each month.

3. A tabulation shall be maintained showing the following information for all other plant wastes and disposal areas:

a. Total monthly volume of grit, skimming, and undigested sludge (in cubic yards or cubic feet) from each treatment unit and the disposal site location

b. Total monthly volume and solids content of dewatered sludge from each treatment unit (in cubic yards or cubic feet) and the disposal site location.

4. A tabulation reflecting bypassing and accidental waste spills shall be maintained showing information items listed in Sections E -1 and E-2 for each occurrence.

5. A chronological log for each month shall be maintained of the effluent disinfection andbacterial analyses, showing the following:

a. Date and time each sample is collected and waste flow rate at time of collection.

b. Chlorine residual, contact time, and dosage (in kilograms per day and parts per million).

c Coliform count for each sample

d. Moving median coliform of the number of samples specified by waste discharge requirements.

F. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Spill Reports

A report shall be made of any spill of oil or other hazardous material. Spills shall be reported to this Regional Board, at (510) 286-1255 on weekdays during office hours from 8 AM to 5 PM, and to the Office of Emergency Services at (800) 852-7550 during non office hours, and the U.S. Coast Guard at (415) 437-3091 (if the spill is into navigable waters) by telephone immediately after occurrence . A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to:

a. nature of waste or pollutant,

b. quantity involved,

c. duration of incident,

d. cause of spill,

e. SPCC Spill Prevention and Containment Plan in effect, if any,

f. estimated size of affected area,

g. nature of effects (i.e., fishkill, discoloration of receiving water, etc.),

h corrective measures that have been taken or planned, and a schedule of these activities, and

i. persons notified.

2. Reports of Plant Bypass, Treatment Unit Bypass and Permit Violation

In the event the discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

a. Maintenance work, power failures, or breakdown of waste treatment equipment, or

b. accidents caused by human error or negligence, or

c. other causes, such as acts of nature,

the discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within 7 working days of the telephone notification . The written report shall include time and date, duration

and estimated volume of waste bypassed, method used in estimating volume and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

In addition, the waste discharger shall promptly accelerate his monitoring program to analyze the discharge at least once every day (Section C.2.h). Such daily analyses shall continue until such time as the effluent limits have been attained, until bypassing stops or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self–Monitoring Report.

3. The discharger shall file a written technical report to be received at least 30 days prior to advertising for bid (60 days prior to construction) on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said reports shall describe the nature, cost, and scheduling of all actions necessary to preclude such discharge. In no case will any discharge of wastes in violation of permit and order be permitted unless notification is made to the Executive Officer and approval obtained from the Regional Board.

4. Self–Monitoring Reports

Written reports shall be filed regularly for each calendar month (unless specified otherwise) and filed no later than the fifteenth day of the following month. The reports shall be comprised of the following:

a. Letter of Transmittal:

A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include:

1) Identification of all violations of waste discharge requirements found during the reporting period,

2) Details of the magnitude, frequency, and dates of all violations,

3) The cause of the violations, and

4) Discussion of the corrective actions taken or planned and the time schedule for completion. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person.

The letter shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

b. Compliance Evaluation Summary

Each report shall be accompanied by a compliance evaluation summary sheet prepared by the discharger. The report format will be prepared using the example shown in Part B. The discharger will prepare the format using those parameters and requirement limits for receiving water and effluent constituents specified in his permit.

c. Map or Aerial Photograph

A map or aerial photograph shall accompany the report showing sampling and observation station locations.

d. Results of Analyses and Observations

Tabulations of the results from each required analysis specified in **Part B** by date, time, type of sample, detection limit and station, signed by the laboratory director. The report format will be prepared using the examples shown in Part B.

1) If the discharger monitors any pollutant more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or as specified in this Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Self-Monitoring Report.

2) Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

e. Effluent Data Summary

Summary tabulations of the data shall include for each constituent total number of analyses, maximum, minimum, and average values for each period. The report format will be the NPDES Discharge Monitoring Report., EPA Form 3320-1. Flow data shall be included. The original is to be submitted to:

Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

f. Flow Data

The tabulation pursuant to Section F-2.

5. Annual Reporting

By January 30 of each year, the discharger shall submit an annual report to the Regional Board covering the previous calendar year. The report shall contain :

a. Both tabular and graphical summaries of the monitoring data during the previous year.

b. A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.

c List of Approved Analyses

1) Listing of analyses for which the discharger is approved by the State Department of Health Services.

2) List of analyses performed for the discharger by another approved laboratory (and copies of reports signed by the laboratory director of that laboratory shall also be submitted as part of the report).

3) List of "waived" analyses, as approved.
The report format shall be prepared by using the examples shown in Part B.

G. DEFINITION OF TERMS

1. A grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with daily maximum limits and instantaneous maximum limits. Grab samples represent only the condition that exists at the time the wastewater is collected.

2. A composite sample is defined as a sample composed of individual grab samples mixed in proportions varying not more than plus or minus five percent from the

instantaneous rate (or highest concentration) of waste flow corresponding to each grab samplecollected at regular intervals not greater than one hour, or collected by the use of continuous automatic sampling devices capable of attaining the proportional accuracy stipulated above throughout the period o f discharge for 8 consecutive or of 24 consecutive hours, whichever is specified in Table 1 of Part B

3. A flow sample is defined as the accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

4. Duly authorized representative is one whose:

   a. Authorization is made in writing by a principal executive officer or ranking elected official;

   b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

5. Average values for daily and monthly values is obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period.

6. Median of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle values, if there is no one middle value.

   a. A 5-day median value for coliform bacteria is the third highest count of 5 daily counts obtained from 5 consecutive sampling days. A 7-day median value is the fourth highest of 7 daily counts obtained from 7 consecutive sampling days.

   b. A 5-day moving median value for coliform bacteria is the median value calculated for each consecutive sampling day based upon the period from the sample day and the previous 4 sampling days.

   c. A 7-day moving median is calculated for each consecutive sampling day based upon the period from the sample day and the previous 6 sampling days. Moving median values for the beginning of the month shall be calculated using the previous month's counts (i.e. the last four counts for a 5-day moving median and the last seven counts for a 7-day moving median from the previous month).

7. A 6-month median means a moving median of daily values for any 180 day period in which daily values represent flow-weighted average concentrations within a daily or 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

8. The geometric mean is anti log of log mean. Used for determining compliance with bacteriological standards, the lcg mean is calculated with the following equation:

$$\text{Log Mean} = \frac{1}{N} \sum_{i=1}^{N} \text{Log } C_i$$

in which "N" is the number of days samples that were analyze during the period and "C_i" is the concentration of bacteria (MPN/100 ml) found on each day of sampling.

9. Daily Maximum limit is the total discharge in a calendar day for pollutants measured by mass or the average measurement obtained for other pollutants.

10. Instantaneous Maximum is defined as the highest measurement obtained for the calendar day, as determined by a grab sample.

11. A depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled and shall be collected in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

12. Bottom sediment sampling and reporting guidelines mean those guidelines developed by the Regional Board staff to provide for standard bottom sampling, laboratory, and reporting procedures.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESOLUTION NO. 92-043

IMPLEMENTATION OF THE REGIONAL MONITORING PLAN
WITHIN THE
SAN FRANCISCO BAY REGION

I. WHEREAS, the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Board) has adopted a Water Quality Control Plan, San Francisco Bay Basin (Basin Plan) which recognizes the need for cost-effective, coordinated regional monitoring and surveillance to evaluate the effectiveness of it's water quality control program; and

II. WHEREAS, the State Water Resources Control Board has adopted the Pollutant Policy Document which stated the need for a multi-media regional monitoring program to assess pollutant trends in the Bay-Delta; and

III. WHEREAS, the Regional Board since 1989 has implemented regional monitoring pilot studies through funds from the Bay Protection and Toxic Cleanup Program, Basin Planning Program, and grants from the U.S. Environmental Protection Agency; and

IV. WHEREAS, the results of the Regional Board's pilot studies have demonstrated the ability to conduct cost-effective regional monitoring that addresses water quality management objectives; and

V. WHEREAS, the Regional Board under the Bay Protection and Toxic Cleanup Program has developed a Regional Monitoring Plan (Attachment A) that covers the entire estuarine system and is designed to evaluate it's water quality control program through the collection of information on the concentrations of pollutants in water, sediment and biota; and

VI. WHEREAS, the San Francisco Estuary Project (SFEP), a State/Federal cooperative endeavor, is currently developing a comprehensive monitoring strategy and conducted a Regional Monitoring Workshop to begin identifying long-term program elements of the strategy including institutional arrangements and research needs; and

VII. WHEREAS, the participants of SFEP's Regional Monitoring Workshop generated a set of principles to guide the advancement of the monitoring strategy; and

VIII. WHEREAS, SFEP has requested that the Aquatic Habitat Institute Board of Directors recommend alternative institutional arrangements for conducting comprehensive regional monitoring and research within the Estuary; and

IX. WHEREAS, the Regional Board will suspend selected current monitoring requirements for permitted dischargers in order for dischargers to redistribute resources to implement baseline portions of the Regional Monitoring Plan; and

X. WHEREAS, the Regional Board recognizes that dischargers will need to expend additional resources in order to fully implement the Regional Monitoring Plan; and

XI. WHEREAS, the Regional Board will be taking a phased approach to implementing the RMP to insure the effective management of the RMP;and

XII. WHEREAS, this action is categorically exempt from the provisions of the California Environmental Quality Act, pursuant to Section 15306, Title 14, California Code of Regulations, in that it involves basic data collection, research, management and resource evaluation activities which will not result in a serious or major disturbance to the environment.

THEREFORE BE IT RESOLVED that the Regional Board endorses in concept the development and implementation of a Regional Monitoring Program for San Francisco Bay and directs the Executive Officer to implement the Regional Monitoring Plan (Attachment A) pursuant to California Water Code Sections 13267 and 13383 (authority) and 13268 and 13385 (penalty provisions).

BE IT FURTHER RESOLVED, that the Executive Officer will select dischargers to participate in the program based on the following criteria: discharger classification, representation of a high percentage of the permitted discharge flow to the Estuary and geographical distribution; and

BE IT FURTHER RESOLVED, that the Regional Board's Executive Officer shall work with the selected dischargers to prepare an implementation plan for the RMP including a schedule for execution and submittal of progress reports and an annual report. The Executive Officer shall report to the Regional Board no later than July 15, 1992 on the status of implementation of the RMP including cost-sharing and institutional arrangements; and

BE IT FURTHER RESOLVED, that the Regional Board, as part of SFEP, will continue to assist in the development of the regional monitoring strategy and will offer for consideration inclusion of this Regional Monitoring Plan into the SFEP strategy; and

BE IT FURTHER RESOLVED, that the Regional Board no later than July 1, 1993 will notify additional selected permitted dischargers to require their participation in the implementing the Regional Monitoring Plan and expanding the Regional Monitoring Plan as necessary; and

BE IT FURTHER RESOLVED, that the Regional Board will include the requirement of participation in implementing the Regional Monitoring Plan into the selected dischargers' permits at the time of reissuance and issuance.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 15, 1992.

Steven R. Ritchie
Executive Officer

File No. 1550.00
(mpc/monitor.res)

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, CA 94612
Phone: 510-622-2300 • Fax: 510-622-2460
http://www.waterboards.ca.gov/sanfranciscobay/

Alan C. Lloyd, Ph.D.
Agency Secretary

Arnold Schwarzenegger
Governor

ORDER NO. R2-2005-0039

NPDES NO. CA0030121

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**Bay Ship & Yacht Company**
Name of Facility	**Bay Ship & Yacht Company**
Facility Address	**2900 Main Street**
	Alameda, California 94501
	Alameda County

The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Surface runoff from Drydock 1 during submergence	38 °, 54 ', 23 " N	122 °, 32 ', 51 " W	Lower San Francisco Bay
002	Surface runoff from Drydock 2 during submergence	38 °, 54 ', 23 " N	122 °, 32 ', 51 " W	Lower San Francisco Bay
003	Integral ballast water from from Drydock No. 1	38 °, 54 ', 23 " N	122 °, 32 ', 51 " W	Lower San Francisco Bay
004	Integral ballast water from from Drydock No. 2	38 °, 54 ', 23 " N	122 °, 32 ', 51 " W	Lower San Francisco Bay

This Order was adopted by the Regional Water Board on:	September 21, 2005
This Order shall become effective on:	November 1, 2005
This Order shall expire on:	October 31, 2010
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a minor discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED that Order No. 98-079 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Bruce Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 21, 2005

for Bruce H. Wolfe, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

REGION 2, SAN FRANCISCO BAY REGION

ORDER NO. R2-2005-0039
NPDES NO. CA0030121

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I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	Bay Ship & Yacht Company
Name of Facility	Bay Ship & Yacht Company
Facility Address	2900 Main Street Alameda, California 94501
Facility Contact, Title, and Phone	Benjamin Perry-Thistle; Environmental, Safety and Health Manager 510-337-9122
Mailing Address	Bay Ship & Yacht Company 2900 Main Street Alameda, CA 94501
Type of Facility	Ship Building and Repair
Facility Design Flow	Not applicable

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Regional Water Board), finds:

A. **Background.** The Bay Ship & Yacht Company (hereinafter the Discharger) is currently discharging under Order No. 98-079, and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0030121. The Discharger submitted a Report of Waste Discharge, dated June 17, 2003, and applied for an NPDES permit renewal to discharge to the Oakland Inner Harbor, part of Lower San Francisco Bay, from its drydock facility located at 2900 Main Street in Alameda.

B. **Facility Description.** The Discharger builds, repairs, and performs maintenance on various seagoing vessels at 2900 Main Street in Alameda. Facilities include two double wall floating drydocks, a machine shop, pipe shop, a metal fabrication shop, and storage sheds. This Order addresses the discharge of two types of wastewaters.

Drydocks are lowered by filling integral ballast compartments with Bay water and are raised by discharging from the compartments into the Bay. Discharges of integral ballast water from Drydock Nos. 1 and 2 occur from Discharge Points 001 and 002, respectively. Repair work is performed on steel platforms of the floating drydocks. Wastewater discharges occur when drydocks are submerged and Bay water flows over the drydock surfaces, carrying particulate and other residual material from drydock surfaces. Discharges of surface washwater from Drydock Nos. 1 and 2 occur from Discharge Points 003 and 004, respectively.

Drydock No.1 is leased to the Discharger by the U.S. National Park Service, which is responsible for compliance with this Order to the extent described/authorized by the CWC, Division 7. Drydock No. 2 is owned by the Discharger.

Attachment B provides a topographic map of the area around the facility. Attachment C provides a flow schematic of the facility.

C. **Legal Authorities.** This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and CWC Chapter 5.5, Division 7. It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4 for discharges that are not subject to regulation under CWA Section 402.

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and through special studies. Attachments A through G contain background information and detailed rationale for Order requirements and are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.

E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with CWC Section 13389.

F. **Technology-Based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR 122.44 (a) requires that permits include technology-based limitations and standards, when such limitations and standards are applicable. Because there are no technology-based effluent limitations or new source performance standards established for the shipyard industry, the Regional Water Board may use best professional judgment (BPJ) to establish technology-based effluent limitations, pursuant to authority established by CWA Section 402 (a) (1) (B), and in accordance with requirements established at 40 CFR 125.3. Discussion of technology-based effluent limitations is included in the Fact Sheet (Attachment F).

G. **Water Quality-Based Effluent Limitations.** 40 CFR 122.44 (d) requires that permits, when necessary, include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR 122.44 (d) specifies that WQBELs may be established using U.S. EPA criteria guidance under CWA Section 304 (a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.

H. **Best Management Practices.** Best Management Practices (BMPs) are defined by NPDES regulations at 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304 (e); and in accordance with NPDES regulations at 40 CFR 122.44 (k), BMPs can be used to control or abate the discharge of pollutants in several circumstances, including, when numeric effluent limitations are infeasible.

I. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan for the San Francisco Bay Region* (the Basin Plan, 1995) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to the Lower San Francisco Bay within the South Bay Watershed, and based on known uses of the receiving waters, are as follows.

- Ocean, Commercial and Sport Fishing
- Estuarine Habitat
- Industrial Service Supply
- Fish Migration
- Navigation
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Non Contact Water Recreation
- Shellfish Harvesting
- Wildlife Habitat

Requirements of this Order specifically implement the applicable water quality control plans.

J. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992 and amended it on May 4, 1995 and November 9, 1999. The CTR was adopted on May 18, 2000 and amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

K. **State Implementation Policy.** On March 2, 2000, the State Water Resources Control Board (State Water Board) adopted *the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the U.S. EPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.

L. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent

limitation exceeds one year, the permit must include interim numeric limitations for that constituent. Where permitted by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. Because this Order does not include numeric effluent limitations but requires primarily implementation of BMPs to control the discharge of pollutants, compliance schedules and interim effluent limitations are not applicable, and therefore, are not included in this Order.

M. Antidegradation Policy. 40 CFR 131.12 requires that State water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The permitted discharge is consistent with the anti-degradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16.

N. Anti-Backsliding Requirements. CWA Sections 402 (o) (2) and 303 (d) (4) and federal regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All conditions of this Order are at least as stringent as the conditions in the previous Order and are therefore consistent with the anti-backsliding requirements of the CWA and federal regulations.

O. Monitoring and Reporting. 40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting monitoring results. CWA Sections 13267 and 13383 authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program accompanying this Order (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

P. Standard and Special Provisions. Standard Provisions, which in accordance with 40 CFR 122.41 and 40 CFR 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. Rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

Q. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.

R. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater to waters of the State at a location or in a manner different from that described in this Order is prohibited.

B. Discharge of sanitary wastewater to waters of the State is prohibited.

C. Discharge of solid materials and solid wastes, spent abrasive and paint residues, and marine fouling organisms to waters of the State is prohibited.

D. Discharge of floating oil or other floating material from any activity that may cause deleterious bottom deposits, turbidity, or discoloration in surface waters is prohibited.

E. Discharge of ship ballast water, from vessels while they are in drydock, is prohibited.

F. Discharge of any pressure washing water, boiler drainage, or any process water that is used or accumulated in the drydock area to waters of the State is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations—Discharge Points 001 and 002

1. The discharge of pollutants from Outfall Nos. 001 and 002 shall be prevented or minimized through implementation of a Best Management Practices Program, as described by Provision VI. C. 1, below.

2. Prior to submergence of any portion of either of the floating drydocks, the Discharger shall remove spent abrasives, paint residues, and other debris, particulate material, and waste from those portions of the drydock floors, which are reasonably accessible, to a degree achievable by scraping, broom cleaning, and pressure washing. After a vessel has been removed from a drydock, the remaining area of the floor which was previously inaccessible, shall be cleaned by scraping, broom cleaning, and pressure washing as soon as practical and prior to the introduction of another vessel. This provision shall not apply in cases wherein a vessel must be introduced into the drydock on an emergency basis, such as to prevent sinking or leakage of oil or other materials. The Executive Officer shall be notified of such circumstances.

B. Final Effluent Limitations—Discharge Points 003 and 004

1. The discharge of pollutants from Outfall Nos. 003 and 004 shall be prevented or minimized through implementation of a Best Management Practices Program, as described by Provision VI. C. 1, below.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this Order. The discharge shall not cause the following conditions in the Lower San Francisco Bay.

1. The discharge of waste shall not cause the following conditions to occur in receiving waters.

   a. Floating, suspended, or deposited macroscopic particulate matter or foam.

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels.

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin.

   e. Toxic or other deleterious substances to be present in concentrations or quantities that will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render such organisms unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limitations to be exceeded in waters of the State at any one place within 1 foot of the water surface.

a. Dissolved Oxygen	5.0 mg/L, minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
b. Dissolved Sulfide	0.1 mg/L, maximum
c. pH	The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
d. Un-ionized Ammonia	0.025 mg/L as N, annual median, 0.4 mg/L as N, maximum
e. Nutrients	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to CWA

Section 303, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all U.S. EPA Standard Provisions for NPDES permits included in Attachment D of this Order.

2. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by CWC Section 13050.

3. The discharge of any radiological, chemical, or biological warfare agent is prohibited.

4. Wastewater collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater. Where exclusion of the public is not appropriate, warning signs shall be posted.

5. The Discharger shall submit, maintain, and implement a Best Management Practices (BMP) Program in accordance with VI. C. 1, below. The BMP Program shall be consistent with the requirements of U.S. EPA regulation 40 CFR 125, Subpart K and the general guidance contained in the NPDES Best Management Guidance Document, U.S. EPA Report No. 600/9-79-045, December 1979 (revised June 1981).

6. Permit Compliance and Rescission of Previous Waste Discharge Requirements. The Discharger shall comply with all sections of this Order beginning on November 1, 2005. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 98-079. Order No. 98-079 is hereby rescinded upon the effective date of this Order.

7. Contingency Plan, Review and Status Reports

   a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (available at http://www.waterboards.ca.gov/sanfrancisco/Download.htm). Resolution 74-10 requires that measures be taken under such circumstances as power outage, employee strikes, earthquakes, fires, and vandalism to assure that wastes are not unnecessarily discharged, or discharged untreated or inadequately treated. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to CWC Section 13387.

      As Resolution 74-10 is directed primarily towards dischargers, which collect and treat wastewaters before discharging (e.g., municipal wastewater treatment plants), the Discharger shall develop and maintain a Contingency Plan only to assure implementation of best management practices under such circumstances as

contemplated by the Resolution. The Contingency Plan must address all applicable requirements of Resolution 74-10, including the potential circumstances of electric power failure. Safeguards shall be described to assure that, in the event of electric power reduction, loss, or failure, the Discharger will comply with the terms and conditions of this Order.

b. The Discharger shall regularly review, and update as necessary, the Contingency Plan so that it remains useful and relevant to current equipment and operation practices. Reviews of the plan shall be conducted annually, and updates shall be completed as necessary.

c. As part of the Annual Report (as described in the MRP, VI. Reporting Requirements), the Discharger shall describe the current status of its Contingency Plan review and update. The description should include a list revisions, or a statement that no changes are needed.

8. New WQOs

As new or revised WQOs come into effect for the Bay and contiguous waterbodies (whether statewide, regional, or site specific), effluent limitations in this Order will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs.

9. Change in Control or Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board. To assume responsibility for and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. Failure to submit the request shall be considered a discharge without waste discharge requirements, a violation of the California Water Code.

10. Permit Reopener

The Regional Water Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order and permit have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

b. If new or revised WQOs come into effect for the Lower San Francisco Bay and contiguous waterbodies (whether statewide, regional, or site specific). In such cases, effluent limitations in this Permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and

Permit is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.

The Discharger may request permit modification based on (b) and (c) above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

11. NPDES Permit

This Order shall serve as an NPDES permit pursuant to CWA Section 402 or amendments thereto, and shall become effective on November 1, 2005, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

12. Order Expiration and Reapplication

a. This Order expires October 31, 2010.

b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a Report of Waste Discharge no later than 180 days before the expiration date of this Order as application for reissuance of this permit and waste discharge requirements.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order. The Monitoring and Reporting Program may be amended by the Executive Officer pursuant to U.S. EPA regulation 40 CFR 122.62, 122.63, and 124.5.

C. Special Provisions

1. Best Management Practices Program

The Discharger shall implement a Best Management Practices Program to identify and evaluate sources of wastes and pollutants associated with activities at the Bay Ship & Yacht Company facility and to identify and implement site-specific best management practices (BMPs) to reduce or prevent the discharge of wastes and pollutants to waters of the State and of the United States. The BMP Program shall include the development, annual updating, and implementation of a BMP Plan. The BMP Plan shall be consistent with the general guidance contained in U.S. EPA's *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004) and shall be submitted to the Regional Water Board for approval by the Executive

Officer within 6 months following adoption of this Order. The BMP Plan shall include the following elements.

a. Characterization of Discharges

The BMP Plan shall include a narrative assessment of all industrial activities conducted at the site; potential pollutant sources associated with each activity; and the nature of the pollutants that could be discharged.

b. Identification of Best Management Practices

The BMP Plan shall include a narrative description of the BMPs to be implemented at the site to control the discharge of pollutants. BMPs shall be identified and described, including the anticipated effectiveness of each BMP, for each potential source of pollutant.

The Discharger shall consider:

- Preventative BMPs - measures to reduce or eliminate the generation of pollutants and waste,
- Control BMPs - measures to control or manage pollutants and waste after they are generated and before they come into contact with water, including measures to prevent leaks and spills and measures to contain dust and particulate material,
- Treatment BMPs - measures to remove pollutants and waste from water released to the Lower San Francisco Bay, and
- Response BMPs - measures to respond to leaks, spills, and other releases with containment, control, and cleanup measures to prevent or minimize the potential for the discharge of pollutants and to minimize the adverse effects of such discharges.

The BMP Plan shall address the following shipyard activities, if applicable, at the Bay Ship & Yacht facility.

- Control of large solid materials
- Abrasive blasting
- Oil, grease, and fuel transfers
- Paint and solvent use
- Dust and overspray
- Over water activities
- Storm drain inlet protection
- Hose, piping, and fitting use and maintenance
- Segregation of water from debris
- Hydroblasting

- Material and waste storage
- Sewage disposal
- Gray water disposal
- Oily bilge and ballast water disposal
- Floating drydock, graving dock, and shipbuilding way cleanup
- Sally port protection
- Discharges resulting from wind, tidal action, and site runoff
- Leaks and spills
- Waste disposal
- Recovery of ship launch grease/wax
- Other activities with potential to result in discharges of wastes or pollutants to the San Francisco Bay

c. Site Map. The BMP Plan shall include a site map that includes:

i. Site boundaries and structures,

ii. The location of site runoff collection and conveyance systems and points of discharge,

iii. Areas of industrial activity where discharges originate. The Site Map shall include the locations of material handling and processing areas; waste treatment, storage, and disposal areas; dust or particulate generating areas; cleaning and rinsing areas; and other areas of industrial activity which are potential pollutant sources.

d. Annual Comprehensive Site Compliance Evaluation

The Discharger shall conduct at least one comprehensive site compliance evaluation per year to determine the effectiveness of the BMP Program. Evaluations shall be conducted not less than 8 or more than 16 months apart. The BMP Plan shall be revised, as appropriate, and retained on-site. The Discharger shall submit a description of the revisions to the Executive Officer, and implement the revisions within 90 days of the evaluation. Evaluations shall include the following.

i. A review of all visual observation records, inspection records, and sampling and analysis results.

ii. A visual inspection of all potential pollutant sources for evidence of, or the potential for, the discharge of pollutants.

iii. A review and evaluation of all BMPs to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed.

iv. An evaluation report that includes, (i) identification of personnel performing the evaluation, (ii) the date of the evaluation, (iii) necessary Program revisions, (iv) incidents of non-compliance and the corrective actions taken, and (vi) a certification that the Discharger is in compliance with this Order. If the above certification cannot be provided, the evaluation report shall include an explanation as to why the Discharger is not in compliance with this Order. The evaluation report shall be submitted as part of the annual report (see Monitoring and Reporting Program), be retained for at least five years, and be signed and certified in accordance with the requirements of this Order.

At least thirty days prior to conducting its Comprehensive Site Compliance Evaluation, the Discharger shall notify the Regional Water Board of its intent to conduct the evaluation, so that a representative of the Regional Water Board may accompany the Discharger during its inspection of the facility and its review of best management practices.

ATTACHMENTS

ATTACHMENT A—DEFINITIONS

1. Bypass means the intentional diversion of waste streams from any portion of treatment facility.

2. Daily Discharge means:

   a. For flow rate measurements, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

   b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

3. Duly Authorized Representative is one whose:

   a. Authorization is made in writing by a principal executive officer or ranking elected official;

   b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

   c. Written authorization is submitted to the U.S. EPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Board and U.S. EPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Hazardous Substance means any substance designated as such at 40 CFR 116 pursuant to Section 311 of the Clean Water Act.

5. Inadequately Treated Waste is wastewater receiving partial treatment but failing to meet discharge requirements.

6. Indirect Discharger means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.

7 Initial Dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

8. Mass Emission Rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

In which N is the number of samples analyzed in any calendar day. Qi and Ci are the flow rate (mgd) and the constituent concentration (mg/L), respectively, which are associated with each of the N grab samples which may be taken in any calendar day. If a composite sample is taken, Ci is the concentration measured in the composite sample and Qi is the average flow rate occurring during the period over which samples are composited. The daily concentration measured over any calendar day of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$C_d = \text{average daily concentration} = \frac{1}{Q_t} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

In which N is the number of component waste streams. Q and C are the flow rate (mgd) and the constituent concentration (mg/L), respectively, which are associated with each of the N waste streams. Qt is the total flow rate of the combined waste streams.

9. Priority Pollutants are those constituents referred to at 40 CFR 122, Appendix D, and listed in the U.S. EPA NPDES Application Form 2C, (dated 6/80) Items V-3 through V -9.

10. Stormwater means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

11. Toxic Pollutant means any pollutant listed as toxic under CWA Section 307 (a) (1) or at 40 CFR 401.15.

12. Total Identifiable Chlorinated Hydrocarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other identifiable chlorinated hydrocarbons.

13. Severe Property Damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.

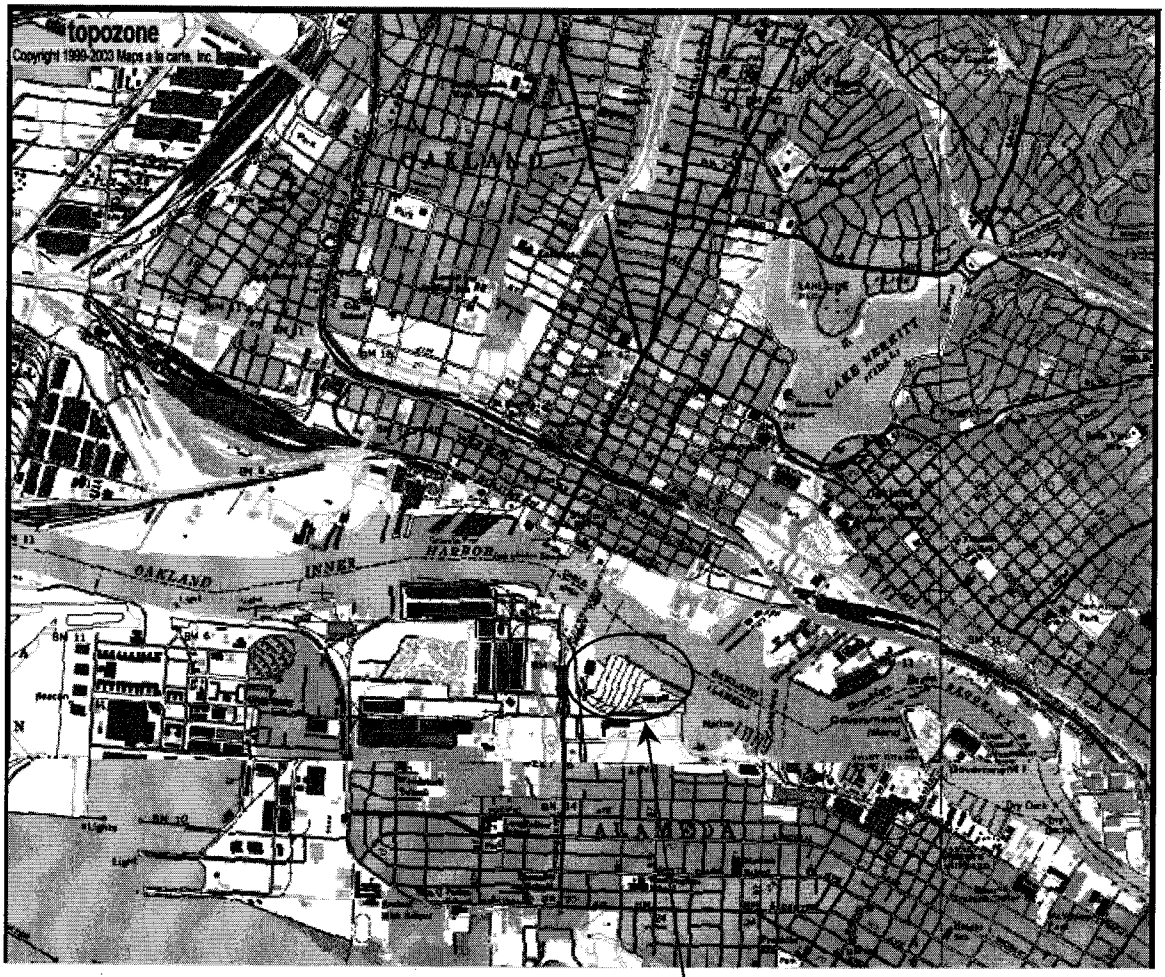
14. Untreated Waste is defined as raw wastewater.

15. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include

noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

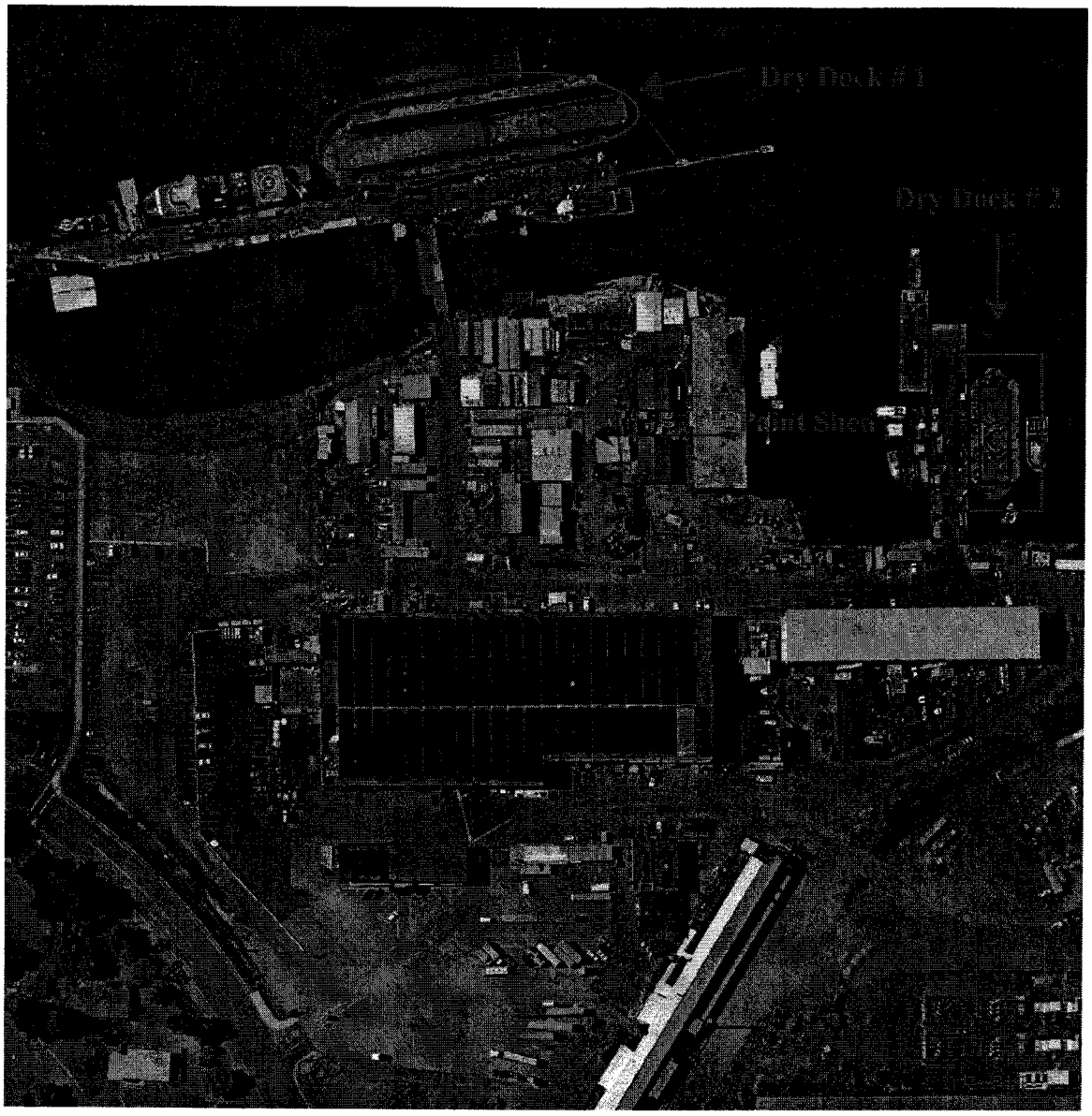
16. Waste, Waste Discharge, Discharge of Waste, and Discharge are used interchangeably in this Order and permit. The requirements of this Order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

ATTACHMENT B—TOPOGRAPHIC MAP



Bay Ship and Yacht Company

ATTACHMENT C—FLOW SCHEMATIC



ATTACHMENT D—FEDERAL STANDARD PROVISIONS

I. Standard Provisions—Permit Compliance

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [40 CFR §122.41 (a)].

2. The Discharger shall comply with effluent standards or prohibitions established under CWA Section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA Section 405 (d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [40 CFR §122.41 (a) (1)].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [40 CFR §122.41 (c)].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [40 CFR §122.41 (d)].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [40 CFR §122.41 (e)].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [40 CFR §122.41 (g)].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [40 CFR §122.5 (c)].

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Resources Control Board (STATE WATER BOARD), the U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [40 CFR §122.41 (i)] [CWC 13383 (c)]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [40 CFR §122.41 (i) (1)];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [40 CFR §122.41 (i)(2)];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [40 CFR §122.41 (i) (3)];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [40 CFR §122.41 (i) (4)].

G. Bypass

1. Definitions

   a. Bypass means the intentional diversion of waste streams from any portion of a treatment facility [40 CFR §122.41 (m) (1) (i)].

   b. Severe property damage means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [40 CFR §122.41 (m) (1) (ii)].

2. Bypass not exceeding limitations—The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions—Permit Compliance I.G.3 and I.G.5 below [40 CFR §122.41 (m) (2)].

3. Prohibition of bypass—Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [40 CFR §122.41 (m) (4) (i)]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [40 CFR §122.41 (m) (4) (A)];

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [40 CFR §122.41 (m) (4) (B)]; and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision—Permit Compliance I.G.5 below [40 CFR §122.41 (m) (4) (C)].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above [40 CFR §122.41 (m) (4) (ii)].

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [40 CFR §122.41 (m) (3) (i)].

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [40 CFR §122.41 (m) (3) (ii)].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [40 CFR §122.41 (n) (1)].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review [40 CFR §122.41 (n) (2)].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [40 CFR §122.41 (n) (3)]:

a. An upset occurred and that the Discharger can identify the cause(s) of the upset [40 CFR §122.41 (n) (3) (i)];

b. The permitted facility was, at the time, being properly operated [40 CFR §122.41 (n) (3) (i)];

c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b [40 CFR §122.41 (n) (3) (iii)]; and

d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above [40 CFR §122.41 (n) (3) (iv)].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [40 CFR §122.41 (n) (4)].

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [40 CFR §122.41 (f)].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [40 CFR §122.41 (b)].

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [40 CFR §122.41 (l) (3)] [40 CFR §122.61].

III. STANDARD PROVISIONS—MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [40 CFR §122.41 (j) (1)].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR §122.41 (j) (4)] [40 CFR §122.44 (i) (1) (iv)].

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [40 CFR §122.41 (j) (2)].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [40 CFR §122.41 (j) (3) (i)];
2. The individual(s) who performed the sampling or measurements [40 CFR §122.41 (j) (3) (ii)];
3. The date(s) analyses were performed [40 CFR §122.41 (j) (3) (iii)];
4. The individual(s) who performed the analyses [40 CFR §122.41 (j) (3) (iv)];
5. The analytical techniques or methods used [40 CFR §122.41 (j) (3) (v)]; and
6. The results of such analyses [40 CFR §122.41 (j) (3) (vi)].

C. Claims of confidentiality for the following information will be denied [40 CFR §122.7 (b)]:

1. The name and address of any permit applicant or Discharger [40 CFR §122.7 (b) (1)]; and
2. Permit applications and attachments, permits and effluent data [40 CFR §122.7 (b) (2)].

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board,

or U.S. EPA copies of records required to be kept by this Order [40 CFR §122.41 (h)] [CWC 13267].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [40 CFR §122.41 (k)].

2. All permit applications shall be signed as follows:

   a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [40 CFR §122.22 (a) (1)];

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [40 CFR §122.22 (a) (2)]; or

   c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA) [40 CFR §122.22 (a) (3)].

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in paragraph (2.) of this provision [40 CFR §122.22 (b) (1)];

   b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of

equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [40 CFR §122.22 (b) (2)]; and

c. The written authorization is submitted to the Regional Water Board, State Water, or USEPA [40 CFR §122.22 (b) (3)].

4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, State Water Board, or U.S. EPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22 (c)].

5. Any person signing a document under paragraph (2) or (3) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [40 CFR §122.22 (d)].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [40 CFR §122.41 (l) (4)].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices [40 CFR §122.41 (l) (4) (i)].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [40 CFR §122.41 (l) (4) (ii)].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [40 CFR §122.41 (l) (4) (iii)].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [40 CFR §122.41 (l) (5)].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR §122.41 (l) (6) (i)].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [40 CFR §122.41 (l) (6) (ii)]:

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order [40 CFR §122.41 (l) (6) (ii) (A)].

   b. Any upset that exceeds any effluent limitation in this Order [40 CFR §122.41 (l) (6) (ii) (B)].

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [40 CFR §122.41 (l) (6) (ii) (C)].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [40 CFR §122.41 (l) (6) (iii)].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [40 CFR §122.41 (l) (1)]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29 (b) [40 CFR §122.41 (l) (1) (i)]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements

under 40 CFR Part 122.42 (a) (1) (see Additional Provisions—Notification Levels VII.A.1) [40 CFR §122.41 (l) (1) (ii)].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [40 CFR §122.41 (l) (1) (iii)].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [40 CFR §122.41 (l) (2)].

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E [40 CFR §122.41 (l) (7)].

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, STATE WATER BOARD, or U.S. EPA, the Discharger shall promptly submit such facts or information [40 CFR §122.41 (l) (8)].

VI. STANDARD PROVISIONS—ENFORCEMENT

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402 (a) (3) or 402 (b) (8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402 (a) (3) or 402 (b) (8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the

case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309 (c) (3) (B) (iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [40 CFR §122.41 (a) (2)] [CWC 13385 and 13387].

B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [40 CFR §122.41 (a) (3)].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [40 CFR §122.41 (j) (5)].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [40 CFR §122.41 (k) (2)].

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [40 CFR §122.42 (a)]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42 (a) (1)]:

   a. 100 micrograms per liter (µg/L) [40 CFR §122.42 (a) (1) (i)];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [40 CFR §122.42 (a) (1) (ii)];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42 (a) (1) (iii)]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44 (f) [40 CFR §122.42 (a) (1) (iv)].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42 (a) (2)]:

   a. 500 micrograms per liter (µg/L) [40 CFR §122.42 (a) (2) (i)];

   b. 1 milligram per liter (mg/L) for antimony [40 CFR §122.42 (a) (2) (ii)];

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42 (a) (2) (iii)]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44 (f) [40 CFR §122.42 (a) (2) (iv)].

B. Publicly Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [40 CFR §122.42 (b)]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [40 CFR §122.42 (b) (1)]; and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [40 CFR §122.42 (b) (2)].

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [40 CFR §122.42 (b) (3)].

ATTACHMENT E—MONITORING AND REPORTING PROGRAM

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ATTACHMENT E—MONITORING AND REPORTING PROGRAM (MRP)

40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC Sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements to implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ±10 percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow measurement devices can be obtained from the following references:

1. *A Guide to Methods and Standards for the Measurement of Water Flow*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 96 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421.)

2. *Water Measurement Manual*, U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington D.C. 20402. Order by Catalog No. 172.19/2:W29/2, Stock No. S/N 24003-0027.)

3. *Flow Measurement in Open Channels and Closed Conduits*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. (Available in paper copy or microfiche from National Technical Information Services (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273 535/5ST.)

4. *NPDES Compliance Sampling Manual*, U.S. Environmental Protection Agency, Office of Water Enforcement, Publication MCD-51, 1977, 140 pp. (Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, CO 80225.)

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services.

D. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
001	M-001	Floor area of Dry Dock No. 1, which is submerged during vessel release
002	M-002	Floor area of Dry Dock No. 2, which is submerged during vessel release
Receiving Water	R-001	Bay water at a sufficient distance from the Bay Ship & Yacht facility to be representative of background water quality conditions

III. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location M-001 and M-002

1. Prior to submergence of any portion of a dry dock, the Discharger shall observe the cleanliness of dry dock surfaces. Observations shall be recorded with the date and time of dry dock use and other observations relevant to the discharge of wastes to the Bay.

2. One time per year, the Discharger shall collect washwater samples from the surface of either drydock, as the dry dock is being submerged. Samples shall be analyzed for settleable and total suspended solids and for the 13 metals identified as Compound Nos. 1–13 by the California Toxics Rule (CTR) at 40 CFR 131.38 (b)—antimony, arsenic, beryllium, cadmium, chromium(3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Samples shall be representative of Bay water that initially washes over the drydock surface. Data generated to meet the requirements of Provision VI. C. 1 of the Order may be used to meet an annual requirement, described here, for analysis of the 13 CTR metals.

IV. SEDIMENT MONITORING

1. One time per year the Discharger shall collect sediment samples at Drydock Nos. 1 and 2 and at a control/background location and analyze the sediment samples for the thirteen metals identified as Compound Nos. 1–13 by the California Toxics Rule at 40

CFR 131.38 (b)—antimony, arsenic, beryllium, cadmium, chromium(3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.

2. Sediment samples from the drydock areas shall be composited from at least 4 surface grab samples collected at each end of the drydocks; i.e., at each drydock, at least 2 grab samples shall be collected at each end of the drydocks, resulting in 4 samples per drydock that shall be composited. One composited sediment sample from each drydock area shall be submitted for analysis.

3. Sediment sampling methods shall result in undisturbed samples from the top 2–3 centimeters of sediment. The control/background location shall be selected to be representative of background conditions within the Bay and in an area where sediment is not affected by activity at the Discharger's facility – i.e., in a location which can be presumed to be free from the effects of the Discharger's activities and other potential impacts. The control/background location shall be reported with analytical results.

V. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location R-001

1. One time during the term of this Order, the Discharger shall collect a receiving water sample at Monitoring Location R-001, simultaneously with collection of an effluent sample, as required by III. A. 2, above. The location of the Monitoring Location R-001 shall be recorded and reported with sample results. Receiving water samples shall be analyzed for settleable and total suspended solids and for the 13 metals identified as Compound Nos. 1- 13 by the California Toxics Rule at 40 CFR 131.38 (b).

VI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports

1. The Discharger shall submit annual Self Monitoring Reports signed and certified as required by Standard Provisions (Attachment D), which include the results of all required monitoring described above, as well as the report of the annual Comprehensive Site Compliance Evaluation pursuant to Part VI. C. 1. d of the Order. Annual reports shall be due on February 1 following each calendar year.

2. Monitoring periods for all required monitoring shall commence upon the effective date of this Order, with the first annual report due on February 1, 2006.

3. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the laboratory current Method Detection Limit (MDL) as determined by procedures in 40 CFR Part 136.

4. The Discharger shall arrange all reported data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with waste discharge requirements.

5. Water quality and sediment data shall be reported in the first Self Monitoring Report to be submitted flowing receipt of the analytical data. The Discharger shall discuss the water quality and sediment data as it reflects the effectiveness of the facility's BMP Program.

6. Annual sediment monitoring data forth five year period preceeding the expiration date of this Order shall be summarized and included with the Discharger's application for renewal of Waste Discharge Requirements. The data shall be analyzed to determine impacts, if any, on sediment quality resulting from discharges from the bay Ship and Yacht Company facilities.

7. The Discharger shall attach a cover letter to its Self Monitoring Report. The information contained in the cover letter shall clearly identify violations of the WDRs, discuss corrective actions taken or planned and the proposed time schedule of corrective actions. Identified violations should include a description of the requirement that was violated and a description of the violation.

8. Monitoring results must be reported on forms approved by this Regional Water Board. Duplicate copies of the monitoring reports, signed and certified as required by the standard provisions (Attachment D) must be submitted to the address listed below.

Submit monitoring reports to:
State Water Resources Control Board
Discharge Monitoring Report Processing Center
Post Office Box 671
Sacramento, CA 95812

ATTACHMENT F—FACT SHEET

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ATTACHMENT F—FACT SHEET

As described in Section II of the Order, this Fact Sheet includes the specific legal requirements and detailed technical rationale that serve as the basis for the requirements of the Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	2 019334001
File #	2199.9334
Discharger	Bay Ship & Yacht Company
Name of Facility	Bay Ship & Yacht Company
Facility Address	2900 Main Street Alameda, CA 94501 Alameda County
Facility Contact, Title and Phone	Benjamin Perry-Thistle; Environmental, Safety and Health Manager 510-337-9122
Authorized Person to Sign and Submit Reports	Benjamin Perry-Thistle; Environmental, Safety and Health Manager 510-337-9122
Mailing Address	2900 Main Street, Alameda, CA 94501
Billing Address	2900 Main Street, Alameda, CA 94501
Type of Facility	Drydock
Classification	Minor
Threat to Water Quality	
Complexity	
Fee Code	
Construction Requirements	N
Industry Class	
Ownership Type	PUB
Funded	N
Pretreatment Program	N
Reclamation Requirements	N/A
Baseline Flow	
Design Flow	
Waste Type 1	
Waste Type 2	
Watershed	South Bay Watershed
Waterbody	Lower San Francisco Bay
Receiving Water Type	
Hydrologic Unit	

Bay Ship & Yacht Company is located at 2900 Main Street in Alameda. Facilities include two double wall floating drydocks, a machine shop, pipe shop, a metal fabrication shop, and storage sheds. Drydock No.1 is leased to the Discharger by the U.S. National Park Service, which will be

responsible for compliance with this Order to the extent described/authorized by CWC Division 7. Drydock No. 2 is owned by the Discharger.

This Order regulates the discharge of wastewaters to the Lower San Francisco Bay, waters of the United States, from the Bay Ship & Yacht facility. This Order also rescinds the requirements of Regional Water Board Order No. 98-079, which was adopted on August 19, 1998 and previously regulated these discharges to the Bay.

The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on June 17, 2003.

II. FACILITY DESCRIPTION

A. Treatment Process Description and Discharge Points

The United States Environmental Protection Agency (U.S. EPA) and the Regional Water Quality Control Board, San Francisco Bay Region (the Board) have classified this facility as a minor discharger.

This Order addresses two wastewaters that originate at the facility. Drydocks are lowered by filling integral ballast compartments with Bay water and are raised by emptying the compartments into the Bay. Repair work is performed on steel platforms of the floating drydocks. Wastewater discharges occur when water is emptied from integral ballast compartments to raise the drydocks, and when drydocks are submerged, and Bay water flows over the drydock surfaces, carrying particulate and other residual material remaining on drydock surfaces. The volume of wastewater resulting from submersal of the drydocks is difficult to estimate.

All process wastewaters generated during ship repair, such as hydro-blasting water and drydock wash water, are collected in sumps at the lower end of the docks and then pumped to a filter treatment system. Storm water runoff from the surface of the drydocks is also collected and drained to the sumps. Non-contact cooling water for onboard ship cooling systems is collected either in the drydock sumps or is pumped directly to the sanitary sewer system. Treated wastewater from the filter system is discharged to the East Bay Municipal Utility District's sanitary sewer system. The Discharger has been issued a pretreatment permit by the East Bay Municipal Utility District.

As described by the following table, this Order and NPDES permit regulates the discharge of Bay water flowing off the surfaces of Drydock Nos. 1 and 2, and Bay water discharged from the integral ballast tanks of the drydocks as they are raised. Discharges from the facility enter Oakland Inner Harbor, part of Lower San Francisco Bay, at latitude 38° 54' 23" N and longitude 122° 32' 51" W. This Order also rescinds the requirements of Regional Water Board Order No. 98-079, which was adopted on August 19, 1998 and previously regulated these discharges to the Bay.

Outfall No.	Description
001	Surface runoff from Drydock No. 1 during submergence
002	Surface runoff from Drydock No. 2 during submergence
003	Integral ballast water from Drydock No. 1
004	Integral ballast water from Drydock No. 2

Attachment B to the Order is a topographic map, which shows the regional location of the Bay Ship & Yacht Company drydock facility. Attachment C to the Order is a wastewater flow schematic of the facility.

B. Discharge Points and Receiving Waters

The beneficial uses of the Lower San Francisco Bay within the South Bay Watershed, as identified in the *Water Quality Control Plan, San Francisco Bay Basin* (the Basin Plan, 1995), and based on known uses of the receiving waters, are:

- Ocean, Commercial and Sport Fishing
- Estuarine Habitat
- Industrial Service Supply
- Fish Migration
- Navigation
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Non Contact Water Recreation
- Shellfish Harvesting
- Wildlife Habitat

The San Francisco Bay, south of the Bay Bridge, is marine water with salinity concentrations consistently greater than 10 ppt.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Requirements of Order No. 98-079

   Order No. 98-079 established discharge prohibitions and a narrative effluent limitation for particulate material discharged from Outfall Nos. 001 and 002, which limited particulate matter in the discharge to a residual amount remaining after thorough cleaning of drydock surfaces. Order No. 98-079 also required the Discharger to conduct a sediment quality study. Self monitoring requirements included only observation of drydock surfaces before submergence and sediment monitoring.

2. Effluent Characterization, Outfall Nos. E-001 and E-002

   Order No. 98-079 required visual observation of the drydocks prior to their submergence; however, no other effluent monitoring was required. A single sample

from Outfall No. 001 was collected on June 23, 2003 and was characterized as follows.

Pollutant	Concentration
pH	7.9 s.u.
Ammonia	0.17 mg/L N
Biochemical Oxygen Demand	< 5 mg/L
Chemical Oxygen Demand	540 mg/L
Total Organic Carbon	1.1 mg/L
Total Suspended Solids	94 mg/L

3. Effluent Characterization, Outfall Nos. E-003 and E-004

   Order No. 98-079 did not require monitoring of discharges from the drydock integral ballast tanks, and therefore, these discharges have not been sampled and analyzed.

4. Sediment Characterization

   Order No. 98-079 required quarterly monitoring of sediment in the vicinity of Drydock No.1; however, no such monitoring was performed.

5. Priority Pollutant Monitoring

   Pursuant to CWC Section 13267, by letter dated August 6, 2001, the Regional Water Board required the Discharger to collect samples of the discharge from Outfall No. 001 or 002 and of receiving water for analysis of the priority pollutants. These samples were not collected and anlyzed.

II. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to CWA Section 402 and implementing regulations adopted by the U.S. EPA and CWC Chapter 5.5, Division 7. It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements pursuant to CWC Article 4, Chapter 4 for discharges that are not subject to regulation under CWA Section 402.

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with CWC Section 13389.

C. State and Federal Regulations, Policies, and Plans

1. Basin Plan. In 1995, the Regional Water Board adopted the Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to the Lower San Francisco Bay within the South Bay Watershed, and based on known uses of the receiving waters, are as follows.

    - Ocean, Commercial and Sport Fishing
    - Estuarine Habitat
    - Industrial Service Supply
    - Fish Migration
    - Navigation
    - Preservation of Rare and Endangered Species
    - Water Contact Recreation
    - Non Contact Water Recreation
    - Shellfish Harvesting
    - Wildlife Habitat

Requirements of this Order specifically implement the applicable water quality control plans.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992 and amended it on May 4, 1995 and November 9, 1999. The CTR was adopted on May 18, 2000 and amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

3. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the U.S. EPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP requires that dischargers submit data sufficient to determine which priority pollutants require water quality-based effluent limitations (WQBELs) and to calculate the effluent limitations. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so. Consistent with these SIP requirements, the Regional Water Board sent a letter to the Discharger on August 6, 2001 requiring collection and analysis of effluent and background water samples for analysis of the priority pollutants. To date, the Discharger has not fulfilled the Regional Water Board's requirements in the letter of August 6, 2001.

4. **Anti-Degradation Policy.** 40 CFR 131.12 requires that State water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The permitted discharge is consistent with the anti-degradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** CWA Sections 402 (o) (2) and 303 (d) (4) and federal regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

6. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the boards to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E to the Order) establishes monitoring and reporting requirements to implement federal and State requirements.

D. Impaired Water Bodies on CWA 303 (d) List

On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 2002, 303 (d) list], pursuant to Section 303 (d) of the CWA, which requires identification of specific water bodies that are not expected to meet water quality standards after implementation of technology-based effluent limitations on point sources. The pollutants impairing Lower San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, and dioxin-like and non dioxin-like PCBs.

The SIP requires final effluent limitations for all 303 (d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated wasteload allocations (WLAs). The SIP and U.S. EPA regulations also require that final concentration-based WQBELs be included for all pollutants having reasonable potential to cause or contribute to an exceedence of applicable water quality standards (having reasonable potential or RP). The SIP requires that where the discharger has demonstrated infeasibility to meet the final WQBELs, interim performance-based limitations (IPBLs) or previous Order limitations (whichever are more stringent) be established in the new Order, together with a compliance schedule that shall remain in effect until final effluent limitations are effective. The SIP also requires the inclusion of appropriate provisions for waste minimization and source control where interim limitations are established. The Order does not establish effluent limitations for any 303 (d) listed pollutants.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, nonconventional, and toxic pollutants that are discharged into the waters of the United States. The control of the discharge of pollutants is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations. 40 CFR 122.44 (a) requires that permits include technology-based limitations and standards, if applicable. 40 CFR 122.44 (d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR 122.44 (d) specifies that WQBELs may be established using U.S. EPA criteria guidance under CWA Section 304 (a); proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information; or an indicator parameter.

Water quality objectives, criteria, effluent limitations, and calculations contained in the Order are based on several resources, which include the following.

- Sections 301 through 305, and 307 of the Federal *Water Pollution Control Act*, and amendments thereto, as applicable;
- The Regional Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan);
- The State Water Board's March 2, 2000 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the State Implementation Plan or SIP), and as subsequently approved by the Office of Administrative Law and the U.S. EPA;
- The U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule—the CTR, codified at 40 CFR 131.38);
- The U.S. EPA's National Toxics Rule, codified at 40 CFR 131.36,
- The U.S. EPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986], and subsequent amendments, (the U.S. EPA Gold Book);
- Applicable U.S. EPA regulations pertaining to NPDES permits and water quality standards [40 CFR Parts 122 and 131];
- U.S. EPA's December 27, 2002 *Revision of National Recommended Water Quality Criteria* compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and
- The Regional Water Board staff's Best Professional Judgment (BPJ), as authorized by CWA Section 402 (a) (1) (B), or as authorized in the Basin Plan, Chapter 4.

A. Discharge Prohibitions

Following are the specific bases for the discharge prohibitions established by this Order.

1. Prohibition A.1 (no discharges other than as described in the permit): As described by State Water Board Order WQO 2002-0012, such a prohibition is appropriate, as the CWA requires enforcement of all water quality standards, including those not expressed as effluent limitations.

2. Prohibitions A.2 (no discharge of sanitary wastewater): This prohibition is retained from Order No. 00-021, and is in accordance with the Basin Plan's Prohibition 15 (Table 4-1).

3. Prohibition A.3 (no discharge of solids and particulates): This prohibition is retained from Order No. 00-021, and is in accordance with the Basin Plan's Prohibitions 6 abd 9 (Table 4-1).

4. Prohibition A.5 (no discharge of floating materials): This prohibition is retained from Order No. 00-021, and is in accordance with the Basin Plan's Prohibitions 8 and 13 (Table 4-1).

5. Prohibition A.6 (no discharge of ship ballast water, from vessels while they are in drydock): This prohibition is retained from Order No. 00-021, and is appropriate as the Discharger has not applied to discharge this waste. Because this discharge is prohibited there are no provisions are in the permit to ensure protection of water quality from such discharges.

6. Prohibition A.7 (no discharge of process wastewater): This prohibition is retained from Order No. 00-021, and is appropriate as such wastes have potential to have pollutants at levels exceeding water quality standards, and so they should be discharged untreated.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) is a standard for the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) that represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. Section 402 (a) (1) of the CWA and 40 CFR 125.3 of the NPDES regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

There are no applicable technology-based ELGs established for the shipyard industry, and the Regional Water Board has not used BPJ to establish such limitations for this Order.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified by the NPDES regulations at 40 CFR 122.44 (d) (1) (i), permits must include WQBELs for pollutants, including toxicity, that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential (the reasonable potential analysis or RPA) and calculating WQBELs, when necessary, is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or water quality criteria contained in the CTR and NTR.

2. Reasonable Potential Analysis (RPA)

a. Water Quality Criteria (WQC) and Objectives (WQOs). The RPA uses Basin Plan WQOs, including narrative toxicity objectives in the Basin Plan, and applicable WQC in the CTR/NTR, or site-specific objectives (SSOs) if available, after adjusting for site-specific hardness and translators, if applicable.

b. Methodology. The RPA uses the methods and procedures prescribed in Section 1.3 of the SIP. Board staff has analyzed available information, including the nature of facility operations and the shipyard industry in general, to determine if the discharges show reasonable potential with respect to the governing WQOs or WQC.

c. Effluent and Background Data. The Discharger has not collected data which characterizes effluent and background water quality; however, the Regional Water Board staff has considered such data generated by a similar discharger to the Lower San Francisco Bay.

d. RPA Determination. Based on its understanding of industry practices and similar facilities, the Regional Water Board has determined that there is reasonable potential for particulate material to be washed into the Bay, when drydocks are submerged. The Regional Water Board has also determined that such particulate material may contain metals, common to the shipyard industry, at concentrations that could cause or contribute to exceedances of applicable WQOs or criteria for metals from the NTR, CTR, and/or the Basin Plan.

The Regional Water Board has based its determination of reasonable potential, in large part, on monitoring performed at San Francisco Drydock, located on the western waterfront of San Francisco Bay at the foot of 20th Street in San Francisco. Monitoring of washwater at this facility showed elevated levels of metals being discharged to the Bay, particularly arsenic, copper, lead, nickel, and zinc at concentrations greater than applicable WQOs/WQC from the Basin Plan, the NTR, and/or the CTR. Data collected by San Francisco Drydock, Inc., representative of discharges that occur when drydocks are submerged, is presented in Attachment G to this Order.

The Regional Water Board has also based its determination of reasonable potential on descriptions, by the Oregon Department of Environmental Quality and the U.S. EPA Office of Enforcement and Assurance, of the generation of numerous pollutants during vessel maintenance and overhaul work—pollutants that can remain in residual amounts on drydock surfaces after cleanup. (*Best Management Practices for Oregon Shipyards*, Oregon Department of Environmental Quality, 2000 and *EPA Office of Compliance Sector Notebook Project: Profile of the Shipbuilding and Repair Industry*, U.S. EPA Office of Enforcement and Compliance Assurance, 1997)

3. Final Water Quality Based Effluent Limitations

a. Outfall Nos. 001 and 002

The Regional Water Board has determined that the establishment and enforcement of numeric effluent limitations for Outfall Nos. 001 and 002 are infeasible, due to the difficulties of collecting representative effluent samples and of determining concentration and mass emissions. The Regional Water Board has

further determined that such discharges are most appropriately controlled by Best Management Practices (BMPs) instead of numeric effluent limitations. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304 (e); and in accordance with NPDES regulations at 40 CFR 122.44 (k), BMPs can be used to control or abate the discharge of pollutants, when numeric effluent limitations are infeasible. The Monitoring and Reporting Program, which accompanies this Order as Attachment E, requires periodic monitoring for metals and suspended solids in washwater samples to assess the effectiveness of the required BMP program. The Regional Water Board will also review the monitoring data to assess performance. If the data shows that BMPs do not adequately control discharges of particulate and metals, the Order can be reopened to include numeric effluent limitations and/or other conditions, as necessary. Monitoring data will also be considered at the time of permit reissuance.

b. Outfall Nos. 003 and 004

Because there is minimal opportunity for the introduction of pollutants to water discharged from the integral ballast tanks of the drydocks, the Regional Water Board has determined that that there is currently no reasonable potential for these discharges to contribute to exceedances of applicable water quality criteria. Numeric effluent limitations are not being established for these discharges by the Order; however, the facility's BMP plan must address these discharges, in particular, the possibility of discharging corrosion product from the drydock ballast tanks.

VI. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. Receiving water limitations C.1 and C.2 (conditions to be avoided): These limitations are based on the previous Order and the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, pages 3-2 through 3-5.

2. Receiving water limitation C.3 (compliance with State Law): This requirement is in the previous Order, requires compliance with Federal and State law, and is self-explanatory.

VII. MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires all NPDES permits to specify recording and reporting of monitoring results. CWC Sections 13267 and 13383 authorize the boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Influent Monitoring

Influent monitoring is not required for this facility.

B. Effluent Monitoring

Effluent monitoring is not required for Outfall Nos. 003 and 004, as water discharged from these outfalls is Bay water that is held temporarily within the integral ballast tanks of the drydocks with no opportunity for contact with potential pollutants. The permit requires monitoring of water that washes over drydock surfaces (Outfall Nos. 001 and 002) on an annual basis to monitoring the effectiveness of the BMP Plan. Washwater must be analyzed for settleable and total suspended solids and for thirteen metals - antimony, arsenic, beryllium, cadmium, chromium (3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. When updating its BMP Plan, the Discharger must consider effluent data to assess the effectiveness of the facility's BMP Program.

C. Sediment Monitoring

In order to further monitor the effectiveness of the BMP Program, the Discharger must collect annual surface sediment samples from the areas of the drydocks and from a control/background location. Sediment samples must be analyzed for thirteen metals - antimony, arsenic, beryllium, cadmium, chromium (3), chromium (6), copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. When updating its BMP Plan, the Discharger must consider sediment data to assess the effectiveness of the facility's BMP Program.

D. Receiving Water Monitoring

One time during the term of the permit, receiving water must be monitored to establish background water quality conditions for comparison with effluent data to ensure compliance with the limitations and standards as authorized by CWC 13383.

VIII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR 122.41and 40 CFR 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order. The Order also includes several provisions, which are standard to NPDES permits issued by the Regional Water Board.

B. Special Provisions

1. Re-Opener Provisions

The Order may be modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include appropriate conditions or limits based on newly available information, or to implement any, new State water quality objectives that are

approved by the U.S. EPA. If a need for additional effluent limitations or permit conditions becomes apparent during the term of the Order, the Order will be reopened to incorporate such limitations and/or conditions.

2. Special Studies and Additional Monitoring Requirements

The Order, including the Monitoring and Reporting Plan, does not include requirements for special studies or monitoring.

3. Best Management Practices and Pollution Prevention

Because the establishment and enforcement of numeric effluent limitations for Outfall Nos. 001 and 002 is infeasible, the Regional Water Board has determined that such discharges are most appropriately controlled by Best Management Practices. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304 (e); and in accordance with NPDES regulations at 40 CFR 122.44 (k), BMPs can be used to control or abate the discharge of pollutants, when numeric effluent limitations are infeasible.

IX. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for San Francisco Drydock, Inc. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the permittee and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided by a public notice advertised in a local newspaper.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **July 28, 2005**

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative orders during its regular Board meeting on the following date and time and at the following location:

Date:	**September 21, 2005**
Time:	**9:00 a.m.**
Location:	**Auditorium** **Elihu Harris State Building** **1515 Clay Street, Oakland, California**

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is … http://www.waterboards.ca.gov/sanfranciscobay/ … where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and noon; and 1:00 p.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Gina Kathuria at 510-622-2378.

ATTACHMENT G—SAN FRANCISCO DRYDOCK MONITORING DATA

At the San Francisco Drydock facility whole effluent toxicity monitoring on washwater samples collected during submergence of the drydocks was performed on a sample collected on May 16, 2002. The washwater sample exceeded the acute toxicity standard of the Basin Plan, which requires: acute toxicity shall not be less than a median of 90 percent survival, or less than 70 percent survival, 10 percent of the time.

Date Sampled	**Acute Toxicity Result**
May 16, 2002	80 percent survival in 96 hour tests using three spine stickle back

One washwater sample, collected on September 19, 2002, during submergence of a drydock at the San Francisco Drydock facility was analyzed for the inorganic priority pollutants with the following results. For perspective, the most stringent applicable water quality standard for each metal, from either the Basin Plan or the California Toxics Rule, is presented adjacent to the measured concentrations of pollutants in washwater.

		Most Stringent Water Quality Criteria and Source of the Criteria	
Pollutant	Concentration (µg/L)	Concentration (µg/L)	Source
Antimony	< 25	4,300	NTR, human health criterion
Arsenic	78	36	BP Table 3-3, marine aquatic life, chronic criterion
Beryllium	< 20	No criteria	-
Cadmium	< 2.5	9.4	BP Table 3-3, marine aquatic life, chronic criterion
Total Chromium	< 100	No criteria	-
Chromium (6)	< 5	50	BP Table 3-3, marine aquatic life, chronic criterion
Copper	280	3.7	CTR, marine aquatic life, chronic criterion
Lead	24	8.5	BP Table 3-3, marine aquatic life, chronic criterion
Mercury	0.00464	0.025	BP Table 3-3, marine aquatic life, chronic criterion
Nickel	56	8.3	BP Table 3-3, marine aquatic life, chronic criterion
Selenium	190	71	NTR, chronic aquatic life criterion for SF Bay
Silver	< 5	2.2	BP Table 3-3, marine aquatic life, acute criterion
Thallium	< 5	6.3	CTR, human health criterion
Zinc	980	86	BP Table 3-3, marine aquatic life, chronic criterion
Cyanide	< 5	1	NTR, marine aquatic life, acute and chronic criteria

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite 1400
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http://www.waterboards.ca.gov/sanfrancsicobay

Dan Skopec
Acting Agency Secretary

Arnold Schwarzenegger
Governor

ORDER NO. R2-2006-0029
NPDES NO. CA0005002

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**USS-POSCO Industries**
Name of Facility	**Pittsburg Plant**
Facility Address	**900 Loveridge Road**
	Pittsburg, CA 94565
	Contra Costa County

The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Combined industrial process wastewater, cooling water, and storm water	38 °, 01', 48" N	121 °, 51', 32" W	New York Slough
002	Storm water	38 °, 01', 51" N	121 °, 51', 58" W	New York Slough

This Order was adopted by the Regional Water Board on:	**May 10, 2006**
This Order shall become effective on:	**July 1, 2006**
This Order shall expire on:	**June 30, 2011**
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 00-130 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted therein, and the provisions of the Federal Clean Water Act (CWA), and regulations and guidelines adopted therein, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 10, 2006.

Bruce H. Wolfe, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 2, SAN FRANCISCO BAY REGION

ORDER NO. R2-2006-0029
NPDES NO. CA0005002

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Attachment H – The following documents are part of this Permit, but are not physically attached due to volume. They are available on the internet at www.waterboards.ca.gov/sanfranciscobay/

- Standard Provisions and Reporting Requirements, August 1993
- Self-Monitoring Program, Part A, adopted August 1993
- August 6, 2001 Staff Letter: *Requirement for Priority Pollutant Monitoring in Receiving Water and Wastewater Discharges*
- Resolution 74-10: *Policy Regarding Waste Discharger's Responsibilities to Develop and Implement Contingency Plans*

I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**USS-POSCO Industries**
Name of Facility	**Pittsburg Plant**
Facility Address	**900 Loveridge Road**
	Pittsburg, 94565
	Contra Costa County
Facility Contact, Title, and Phone	**David Allen, Sr. Environmental Engineer, (925) 439-6290**
Mailing Address	**P. O. Box 471, MS#67, Pittsburg, CA 94565**
Type of Facility	**Steel Finishing Plant**
Facility Design Flow	**28 million gallons per day (MGD)**

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. **Background.** USS-POSCO Industries (hereinafter Discharger) is currently discharging under Order No. 00-130 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005002. The Discharger submitted a Report of Waste Discharge, dated May 31, 2005, and applied for a NPDES permit renewal to discharge up to 28 MGD of treated wastewater from USS-POSCO Industries, hereinafter Facility. The application was deemed complete on June 1, 2005.

B. **Facility Description.** The Discharger owns and operates the steel finishing plant. The treatment system consists of oil separation, flocculation, clarification, and final pH adjustment. Wastewater is discharged from Discharge Point 001 (see table on cover page) to New York Slough, a water of the United States and a contiguous water body of the Sacramento-San Joaquin Delta within Suisun Basin. Attachment B provides a topographic map of the area around the facility. Attachment C provides a flow schematic of the facility.

C. **Legal Authorities.** This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and through special studies. Attachments A through H, which contain background information and rationale for Order requirements, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.

E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

F. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on 40 CFR Part 420 Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing, and 40 CFR Part 433 Metal Finishing Point Source Category. The Regional Water Board has considered the factors listed in CWC §13241 in establishing these requirements. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. **Water Quality-based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed state criteria or a state policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. A detailed discussion of the WQBELs development is included in the Fact Sheet (Attachment F).

1. **Constituents identified in the 303(d) List.** On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (the 303(d) List). The State had prepared the 303(d) List pursuant to provisions of section 303(d) of the CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing the Sacramento-San Joaquin Delta include chlordane, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, total PCBs, PCBs (dioxin like), and selenium.

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Basin, *Water Quality Control Basin (Region 2),* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page 2-5 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for New York Slough, but does identify present and potential uses for Sacramento-San Joaquin Delta, to which New York Slough is a contiguous water body of the Sacramento-San Joaquin Delta within the Suisun Basin. These beneficial uses are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Sacramento-San Joaquin Delta	Agricultural Supply (AGR), Municipal and Domestic Supply (MUN), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PROC), Ocean Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Water Contact Recreation (REC-1), Noncontact Water Recreation (REC-2), Fish Spawning (SPWN), Wildlife Habitat (WILD), and Navigation (NAV).

I. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal* and *Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

J. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

K. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The State Water Board subsequently amended the SIP, and the amendments became effective on May 31, 2002. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.

1. **Requirement for Additional Monitoring.** On August 6, 2001, Regional Water Board staff sent a letter to all permitted dischargers pursuant to Section 13267 of CWC requiring the submittal of effluent and receiving water data on priority pollutants, hereinafter referred to as the "August 6, 2001 Letter". Pursuant to the August 6, 2001 Letter, the Discharger collected and analyzed priority pollutants during the years 2001 through 2005. Details of these data and the rationale for the additional monitoring required in this Order are provided in the Fact Sheet (Attachment F).

2. **Regional Monitoring Program.** On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this region, under authority of Section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders, including the Discharger, responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. Details of the Discharger's participation and support of the RMP are provided in the Monitoring and Reporting Program (Attachment E) and the Fact Sheet (Attachment F) of this Order.

L. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in a NPDES permit. Unless an exception has been granted

under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does include compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) is included in the Fact Sheet (Attachment F).

M. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the Federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the Federal antidegradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.

N. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and Federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All water quality based effluent limitations in this Order are at least as stringent as in the previous permit. Some technology based effluent limitations in this Order are less stringent than those in the previous permit. As discussed in detail in the Fact Sheet (Attachment F) this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and Federal regulations.

O. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (hereinafter MRP) establishes monitoring and reporting requirements to implement Federal and State requirements. This MRP is provided in Attachment E.

P. **Standard and Special Provisions.** Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Water Board has also included in this Order Standard Provisions and Reporting Requirements applicable to all NPDES dischargers (Attachment H).

Q. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.

R. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

III. DISCHARGE PROBHIBITIONS

A. Discharge of any wastewater at a location or in a manner different from that described in this Order is prohibited.

B. The bypass or overflow of untreated or partially treated process wastewater to waters of the State, either at the treatment plant or from the collection system, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001 and Discharge Point 002

1. Final Effluent Limitations

Discharge Point 001

a. The discharge of combined industrial process wastewater, cooling water, and storm water shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location M-001 as described in the attached MRP (Attachment E):

Parameter	Units [1]	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH[4]	Standard Units			6.5	8.5
Temperature	°F				93
Settleable Matter	ml/l/hr	0.1	0.2		
Total Suspended Solids	lbs/day	2365	5139		
Oil and Grease	lbs/day	1025	2391		
Copper	µg/L	3.3	5.5		
Cyanide **Effective Starting: April 28, 2010**	µg/L	0.5	1.0		
Lead	lbs/day	15.5	31.5		
Zinc	lbs/day	5.6	16.9		
Total Chromium	lbs/day	42.8	69.4		
Total Nickel	lbs/day	59.6	99.6		
Total Silver	lbs/day	6.0	10.8		
Naphthalene	lbs/day	--	0.68		
Chlorodibromomethane **Effective Starting: May 18, 2010**	µg/L	0.4	0.8		
Dichlorobromomethane **Effective Starting: May 18, 2010**	µg/L	0.6	1.1		
Tetrachloroethylene	lbs/day	--	1.03		

[1] Unit Abbreviations:
°F = Degree Fahrenheit
lbs/day = pounds per day
ml/l/hr = milliliters per liter, per hour
µg/L = micrograms per liter

b. Alternative Cyanide Effluent Limitation. If a cyanide site-specific water quality objective (SSO) for the receiving water becomes legally effective, based on the assumptions in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco* Bay, dated November 10, 2005, and as summarized in the Fact Sheet, then, upon its effective date, the following effluent limitations shall supercede those specified in A.1.a, above.

Maximum Daily of 18.6 µg/L, and Monthly Average of 9.3 µg/L

c. Whole Effluent Acute Toxicity. Representative samples of the discharge at Discharge Point 001 shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Section V.A of the attached MRP (Attachment E):

(1) The survival of bioassay test organisms in 96-hour flow-through bioassays of undiluted effluent shall be:
(a) An eleven (11)-sample median value of not less than 90 percent survival; and
(b) An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

(2) These acute toxicity limits are further defined as follows:

(a) 11-sample median limit:
Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

(b) 90th percentile limit:
Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

d. Whole Effluent Chronic Toxicity. Representative samples of the discharge at Discharge Point 001 shall meet the following limits for chronic toxicity.
(a) A three-sample median value of equal to or less than 5 TUc; and
(b) A single-sample maximum value of equal to or less than 10 TUc.
Compliance with these limits shall be achieved in accordance with Section V.B of the attached MRP (Attachment E).

These chronic toxicity limits are defined as follows:

(a) A test sample showing chronic toxicity greater than 5 TUc represents consistent toxicity and a violation of this limitation, if one or more of the past two or less tests show toxicity greater than 5 TUc, and

(b) a test sample showing chronic toxicity greater than 10 TUc represents an additional violation of this limitation.

(c) A TUc equals 100/NOEL. The NOEL is the no observable effect level, determined from IC, EC, or NOEC values. These terms and their usage in determining compliance with the limitations are defined in the Attachment G of this Order. The NOEL shall be based on a critical life stage test using the most sensitive test species as specified by the Executive Officer. The Executive Officer may specify two compliance species if test data indicate that there is alternating sensitivity between the two species. If two compliance test species are specified; compliance shall be based on the maximum TUc value for the discharge sample based on a comparison of TUc values obtained through concurrent testing of the two species.

Should a violation of the chronic toxicity effluent limitation(s) occur, the Discharger shall conduct accelerated monitoring. Accelerated monitoring shall consist of monthly monitoring. If data from accelerated monitoring tests are found to be in compliance with the chronic toxicity effluent limitations, then routine monitoring shall be resumed. If accelerated monitoring tests continue to exceed chronic toxicity limitation(s) (i.e., any two consecutive accelerated monitoring tests > 5 TU_c), then the Discharger shall initiate a chronic toxicity reduction evaluation in accordance with Section V.C of the attached MRP (Attachment E).

Discharge Point 002

e. The discharge of storm water shall maintain compliance with the following effluent limitations at Discharge Point 002, with compliance measured at Monitoring Location M-002 as described in the attached MRP (Attachment E):

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Oil & Grease	mg/L		15		
pH[4]	Standard Units			6.5	8.5

2. **Interim Effluent Limitations**

Discharge Point 001

During the period beginning July 1, 2006, and ending on April 28, 2010, for cyanide, the discharge of combined industrial process wastewater, cooling water, and storm water shall maintain compliance with the following limitations at Discharge Point 001, with compliance measured at Monitoring Location M-001 as described in the attached MRP (Attachment E). These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in Provision VI.C.4., Compliance Schedules, of this Order.

Parameter	Units	Maximum Daily
Cyanide	µg/L	22.0
Chlorodibromomethane	µg/L	2.0
Dichlorobromomethane	µg/L	2.0

3. **Intake Water Credit.**
The Discharger has met the conditions specified in Section 1.4.4, Intake Water Credits, of the SIP as discussed in detail in the Fact Sheet (Attachment F). The Discharger qualifies to receive intake water credit for copper as an alternative to complying with the concentration-based effluent limitations specified in IV.A.1.a of this Order. This credit is to offset high levels of copper found in the intake water. Compliance with the concentration-based limitation for copper specified in IV.A.1.a of this Order shall be assessed as follows:

a. Monitoring Requirements. The Discharger shall obtain monitoring samples in the intake, at Monitoring Locations I-001 and I-002, and in the effluent, at Monitoring Location M-001, during the same 24-hour period, as required in the attached MRP (Attachment E).

b. Copper Intake Concentration. The Discharger shall use the weighted average of the monitoring samples' analytical results obtained from Monitoring Locations I-001 and I-002, as specified in Section IV.A.3.a of this Order, to determine the copper intake concentration. The weighted average shall be calculated as follows:

Copper Intake Concentration = (Cu001*Q001 + Cu002*Q002) / QTotal

where:
Cu001 = Cooper Concentration at Monitoring Location I-001
Cu002 = Cooper Concentration at Monitoring Location I-002
Q001 = Intake Flow at Monitoring Location I-001
Q002 = Intake Flow at Monitoring Location I-002
QTotal = Q001 + Q002

c. Compliance Evaluation. If the effluent monitoring results indicate that the copper concentration is equal to or less than the Copper Intake Concentration, then the concentration limitations specified in IV.A.1.a of this Order are not applicable, and therefore, the discharge is in compliance. Otherwise, the effluent must comply with the effluent limitations specified in IV.A.1.a of this Order.

4. **pH**

The pH of the discharge shall not exceed 8.5 nor be less than 6.5 standard units. If the Discharger employs continuous pH monitoring, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied:

a. The total time during which the pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month.

b. No individual excursion from the required range of pH values shall exceed 60 minutes.

B. Land Discharge Specifications – N/A

C. Reclamation Specifications – N/A

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in New York Slough:

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam in concentrations that cause nuisance or adversely affect beneficial uses;

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

   c. Alterations of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and

   e. Toxic or other deleterious substances to be present in concentrations or quantities, which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.

3. The discharges shall not cause the following limits to be exceeded in waters of the State at any one place within one foot of the water surface:

   a. Dissolved Oxygen: 5.0 mg/L, minimum
   The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 Standard Units.

d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and 0.16 mg/L as N, maximum.

e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

4. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

B. Groundwater Limitations – N/A

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements, August 1993* (Attachment H), including any amendments thereto. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall apply.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order. The MRP includes monitoring at M-001 and M-002 for conventional, non-conventional, and toxic pollutants.

C. Special Provisions

1. **Reopener Provisions.** The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

   a. If present or future investigations demonstrate that the discharge(s) governed by this Order will, or cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.

   b. As new or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs.

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.

d. An administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge; and

e. as authorized by law.

The Discharger may request permit modification based on b, c, d, and e above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

2. **Special Studies, Technical Reports and Additional Monitoring Requirements**

a. **Effluent Monitoring.**
The Discharger shall continue its effort to monitor and evaluate the discharge from Outfall M-001 for all 126 priority pollutants in the CTR as indicated in the sampling plan. The Discharger shall conduct monitoring as specified in the MRP in Attachment E of this Order effective July 1, 2006.

This information shall be included with the annual report required by this Order in Regional Water Board's Standard Provisions and Reporting Requirements, Attachment H. The report shall summarize the data collected to date and describe future monitoring to take place. A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the permit expiration date. Reporting requirements under this section may be satisfied by: (a) monthly reporting using the electronic reporting system (ERS), and (b) submittal of a complete application for permit reissuance no later than 180 days prior to the permit expiration date.

b. **Ambient Background Receiving Water Monitoring.**
The Discharger shall continue to collect or participate in collecting background ambient receiving water data with other dischargers and/or through the Regional Monitoring Program. This information is required to perform RPAs and to calculate effluent limitations. To fulfill this requirement, the Discharger shall submit (or cause to have submitted on its behalf) data sufficient to characterize the concentration of each toxic pollutant listed in the CTR in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has mixed with the receiving waters.

The sampling frequency and sampling station locations shall be specified in the sampling plan. The frequency of the monitoring shall consider the seasonal variability of the receiving water.

c. **Optional Mass Offset.**
The Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d) listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

d. **Thermal Plume Monitoring**

To determine whether the temperature of the discharge (at Discharge Point 001) is protective of beneficial uses, the Discharger shall:

Task	Due Date
Propose a Study Plan and an implementation schedule	November 1, 2006
Conduct Study in accordance with the study plan that incorporates any and all comments from the Executive Officer	February 1, 2007
Submit Final Report	In accordance with the Study Plan implementation schedule, but no later than February 1, 2009.

In submitting the proposed study, the Discharger shall also send copies to the California Department of Fish & Game, and National Oceanic and Atmospheric Administration – National Marine Fisheries Service. This study proposal is subject to the written approval of the Executive Officer.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program.**

(1) The Discharger shall continue to implement and improve, in a manner acceptable to the Executive Officer, its existing Pollution Prevention Program for cyanide, chlorodibromomethane and dichlorobromomethane in order to reduce pollutant loadings to the treatment plant and therefore to the receiving waters. The Discharger shall also implement any applicable additional pollutant minimization measures described in the Basin Plan implementation requirements associated with the Cyanide SSO if and when the cyanide SSO becomes effective and the alternate cyanide limit takes effect.

(2) The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than August 30th of each year. Annual reports shall cover July through June of the preceding year. Annual report shall include at least the following information:
(a) *A brief description of its treatment facilities and treatment processes.*
(b) *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
(c) *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.
(d) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks itself or participate in group, regional, or national tasks that will address its pollutants of concern. The

Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time-line shall be included for the implementation of each task.

(e) *Outreach to employees.* The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input to the Program.

(f) *Discussion of criteria used to measure the program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item 2)iii., 2)iv., and 2)v.

(g) *Documentation of efforts and progress.* This discussion shall detail all the Discharger's activities in the Pollution Minimization Program during the reporting year.

(h) *Evaluation of program's and tasks' effectiveness.* The Discharger shall use the criteria established in 2)vi. To evaluate the Program's and tasks' effectiveness.

(i) *Identification of Specific Tasks and Time Schedules for Future Efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the treatment plant, and subsequently in its effluent.

(3) According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:

(a) A sample result is reported as detected, but not quantified (less than the Minimum Level)(ML) and the effluent limitation is less than the reported ML; or

(b) A sample result is reported as not detected (less than the Method Detection Limit)(MDL) and the effluent limitation is less than the MDL;

(c) The Discharger shall expand its existing Pollution Minimization Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant (1) when there is evidence that it is present in the effluent above an effluent limitation and either 3)*i.*, or 3)*ii.* If triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

(4) If triggered by the reasons in 3) above and notified by the Executive Officer, the Discharger's Pollution Minimization Program shall, within 6 months, also include the following:

(a) An annual review and semiannual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data.

(b) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data.

(c) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation.

(d) Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy.

(e) An annual status report that shall be sent to the Regional Water Board including the following:

i. All Pollution Minimization Program monitoring results for the previous year

ii. A list of potential sources of the reportable priority pollutant(s)

iii. A summary of all actions undertaken pursuant to the control strategy

iv. A description of actions to be taken in the following year.

(5) To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue, modify, or expand its Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

(6) These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in the Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

b. **Storm Water Pollution Prevention Plan.**
The Discharger shall update and submit an updated Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer by September 1st of each year. If the Discharger determines that it does not need to update its SWPPP, it shall submit a letter to the Executive Officer that indicates no revisions are necessary and the last year it updated its SWPPP. The Discharger shall implement the SWPPP and the SWPPP shall comply with the requirements contained in *Standard Provisions and Reporting Requirements, August 1993* (Attachment H), of this Order.

4. **Compliance Schedules**
Until final Waste Load Allocations (WLAs) that are derived from Total Maximum Daily Loads (TMDLs) and Site Specific Objectives (SSOs) are adopted, the SIP and the Basin Plan authorize a compliance schedule in the permit, when final WQBELs may be affected by those TMDLs and SSOs, and when existing discharger cannot immediately comply with a new and more stringent effluent limitation. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the Discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. As further described in detail in the Fact Sheet (Attachment F), the Discharger by letter dated February 7, 2006, demonstrated that it is infeasible to achieve compliance for certain pollutants. The following compliance schedules for applicable interim limits are established based on Section 2.2 of the SIP for limits derived from CTR WQC or based on the Basin Plan for limits derived from the Basin Plan WQOs.

Constituent	Reference for applicable standard	Maximum compliance schedule allowed	Compliance date and Basis
Cyanide	NTR	10 years	**April 28, 2010** (10 years from effective date of SIP). Basis is the Basin Plan
Chlorodibromomethane, and Dichlorobromomethane	CTR	5 years	**5-yr, but no later than May 18, 2010** (this is 10 years from effective date of CTR/SIP). Basis is the CTR and SIP.

5. **Construction, Operation and Maintenance Specifications – N/A**
6. **Special Provisions for Municipal Facilities (POTWs Only) –N/A**

7. **Other Special Provisions**

a. **Contingency Plan Update.**

(1) The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (Attachment H), and as prudent in accordance with current industrial facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the CWC.

(2) The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

(3) The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to its Contingency Plan.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. Average Monthly Effluent Limitation (AMEL).

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. Average Weekly Effluent Limitation (AWEL) – N/A.

C. Maximum Daily Effluent Limitation (MDEL).
If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

D. Instantaneous Minimum Effluent Limitation.
If the analytical result of a single grab sample is lower than the minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the minimum effluent limitation would result in two instances of non-compliance with the minimum effluent limitation).

E. Instantaneous Maximum Effluent Limitation.
If the analytical result of a single grab sample is higher than the maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the maximum effluent limitation would result in two instances of non-compliance with the maximum effluent limitation).

F. Six-month Median Effluent Limitation – N/A.

ATTACHMENT A – DEFINITIONS

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

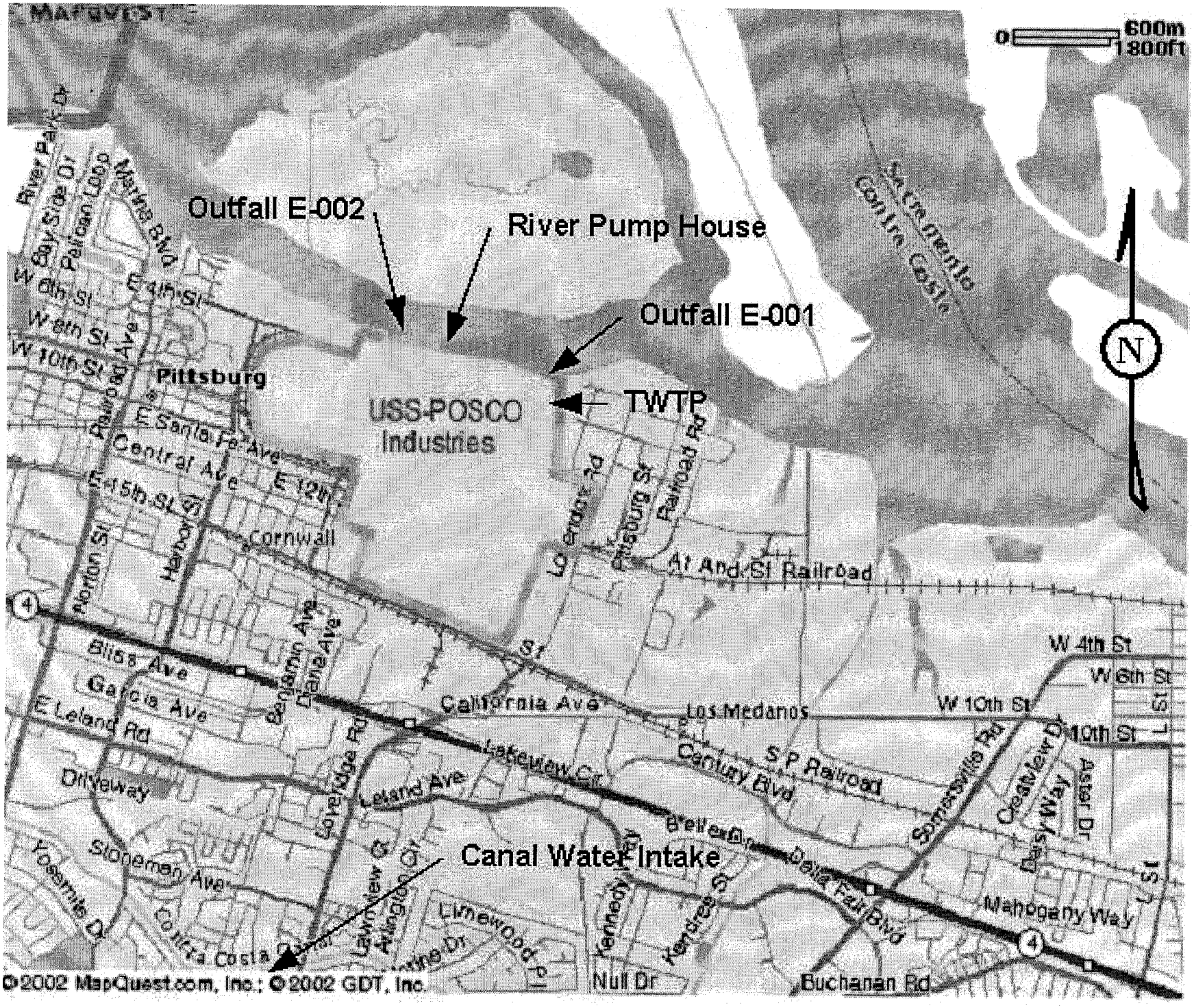
Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the minimum limitation).

Maximum Daily Effluent Limitation (MDEL): the highest allowable daily discharge of a pollutant.

Six-month Median Effluent Limitation: the highest allowable moving median of all daily discharges for any 180-day period.

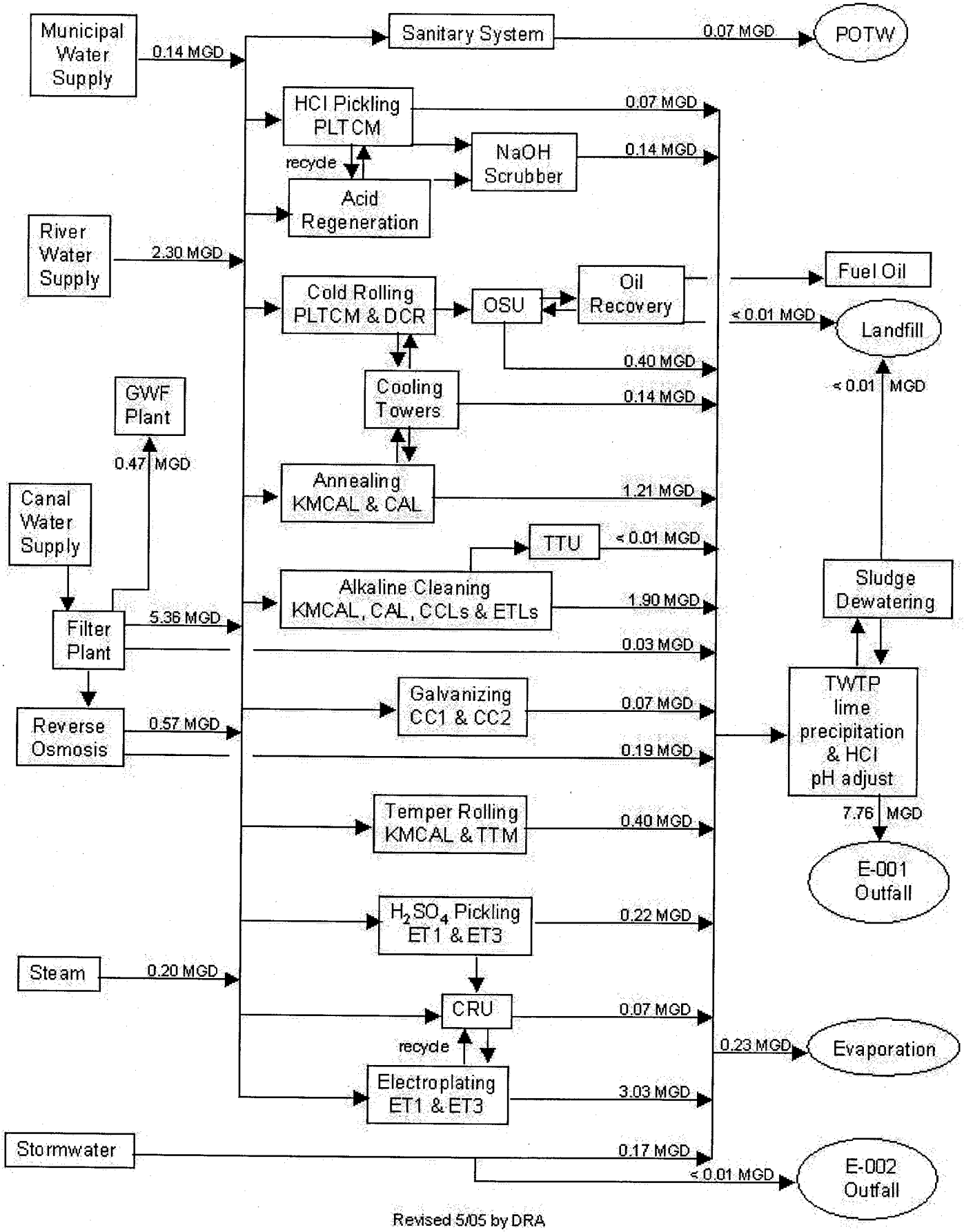
ATTACHMENT B – TOPOGRAPHIC MAP



USS-POSCO Industries Site Location Map

ATTACHMENT C – FLOW SCHEMATIC

Schematic of Water Flow
USS-POSCO Industries
CAD 009150194



Revised 5/05 by DRA

ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [*40 CFR §122.41(a)*].

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [*40 CFR §122.41(a)(1)*].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [*40 CFR §122.41I*].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [*40 CFR §122.41(d)*].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [*40 CFR §122.41(e)*].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [*40 CFR §122.41(g)*].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [*40 CFR §122.5I*].

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [*40 CFR §122.41(i)*] [*CWC 13383I*]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [*40 CFR §122.41(i)(1)*];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [*40 CFR §122.41(i)(2)*];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [*40 CFR §122.41(i)(3)*];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [*40 CFR §122.41(i)(4)*].

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [*40 CFR §122.41(m)(1)(i)*].

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [*40 CFR §122.41(m)(1)(ii)*].

2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3 and I.G.5 below [*40 CFR §122.41(m)(2)*].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [*40 CFR §122.41(m)(4)(i)*]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [*40 CFR §122.41(m)(4)(A)*];

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [*40 CFR §122.41(m)(4)(B)*]; and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [*40 CFR §122.41(m)(4)I*].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [*40 CFR §122.41(m)(4)(ii)*].

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [*40 CFR §122.41(m)(3)(i)*].

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions – Reporting V.E below [*40 CFR §122.41(m)(3)(ii)*].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [*40 CFR §122.41(n)(1)*].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review [*40 CFR §122.41(n)(2)*].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [*40 CFR §122.41(n)(3)*]:

a. An upset occurred and that the Discharger can identify the cause(s) of the upset [*40 CFR §122.41(n)(3)(i)*];

b. The permitted facility was, at the time, being properly operated [*40 CFR §122.41(n)(3)(i)*];

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [*40 CFR §122.41(n)(3)(iii)*]; and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [*40 CFR §122.41(n)(3)(iv)*].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [*40 CFR §122.41(n)(4)*].

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [*40 CFR §122.41(f)*].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [*40 CFR §122.41(b)*].

i. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [*40 CFR §122.41(l)(3)*] [*40 CFR §122.61*].

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [*40 CFR §122.41(j)(1)*].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [*40 CFR §122.41(j)(4)*] [*40 CFR §122.44(i)(1)(iv)*].

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at

least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [*40 CFR §122.41(j)(2)*].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [*40 CFR §122.41(j)(3)(i)*];
2. The individual(s) who performed the sampling or measurements [*40 CFR §122.41(j)(3)(ii)*];
3. The date(s) analyses were performed [*40 CFR §122.41(j)(3)(iii)*];
4. The individual(s) who performed the analyses [*40 CFR §122.41(j)(3)(iv)*];
5. The analytical techniques or methods used [*40 CFR §122.41(j)(3)(v)*]; and
6. The results of such analyses [*40 CFR §122.41(j)(3)(vi)*].

C. Claims of confidentiality for the following information will be denied [*40 CFR §122.7(b)*]:

1. The name and address of any permit applicant or Discharger [*40 CFR §122.7(b)(1)*]; and
2. Permit applications and attachments, permits and effluent data [*40 CFR §122.7(b)(2)*].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, SWRCB, or USEPA within a reasonable time, any information which the Regional Water Board, SWRCB, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, SWRCB, or USEPA copies of records required to be kept by this Order [*40 CFR §122.41(h)*] [*CWC 13267*].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, SWRCB, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [*40 CFR §122.41(k)*].
2. All permit applications shall be signed as follows:
   a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities,

provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [*40 CFR §122.22(a)(1)*];

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [*40 CFR §122.22(a)(2)*]; or

c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [*40 CFR §122.22(a)(3)*].

3. All reports required by this Order and other information requested by the Regional Water Board, SWRCB, or USEPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in paragraph (2.) of this provision [*40 CFR §122.22(b)(1)*];

   b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [*40 CFR §122.22(b)(2)*]; and

   c. The written authorization is submitted to the Regional Water Board, SWRCB, or USEPA [*40 CFR §122.22(b)(3)*].

4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, SWRCB or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22I].

5. Any person signing a document under paragraph (2.) or (3.) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [*40 CFR §122.22(d)*].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [*40 CFR §122.41(l)(4)*].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or SWRCB for reporting results of monitoring of sludge use or disposal practices [*40 CFR §122.41(l)(4)(i)*].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [*40 CFR §122.41(l)(4)(ii)*].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [*40 CFR §122.41(l)(4)(iii)*].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [*40 CFR §122.41(l)(5)*].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [*40 CFR §122.41(l)(6)(i)*].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [*40 CFR §122.41(l)(6)(ii)*]:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(A)*].

b. Any upset that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(B)*].

c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [*40 CFR §122.41(l)(6)(ii)I*].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [*40 CFR §122.41(l)(6)(iii)*].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [*40 CFR §122.41(l)(1)*]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [*40 CFR §122.41(l)(1)(i)*]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [*40 CFR §122.41(l)(1)(ii)*].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [*40 CFR §122.41(l)(1)(iii)*].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or SWRCB of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [*40 CFR §122.41(l)(2)]*.

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [*40 CFR §122.41(l)(7)*].

ii. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, SWRCB, or USEPA, the Discharger shall promptly submit such facts or information [*40 CFR §122.41(l)(8)*].

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [*40 CFR §122.41(a)(2)*] [*CWC 13385 and 13387*].

B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [*40 CFR §122.41(a)(3)*].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon

conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [*40 CFR §122.41(j)(5)*].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [*40 CFR §122.41(k)(2)*].

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [*40 CFR §122.42(a)*]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(1)*]:

   a. 100 micrograms per liter (µg/L) [*40 CFR §122.42(a)(1)(i)*];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(1)(ii)*];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(1)(iii)*]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(1)(iv)*].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(2)*]:

   a. 500 micrograms per liter (µg/L) [*40 CFR §122.42(a)(2)(i)*];

   b. 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(2)(ii)*];

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(2)(iii)*]; or

d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(2)(iv)*].

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [*40 CFR §122.42(b)*]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [*40 CFR §122.42(b)(1)*]; and

    iii. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [*40 CFR §122.42(b)(2)*].

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [*40 CFR §122.42(b)(3)*].

Attachment E – Monitoring and Reporting Program – Table of Contents

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) at 40 CFR §122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which implement the Federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the Self-Monitoring Program, Part A, adopted August 1993 (SMP, Attachment H of this Order). The MRP and SMP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods, or that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board's Quality Assurance Program. The Regional Water Board will find the Discharger in violation of the limitation if the discharge concentration exceeds the effluent limitation and the Reporting Level for the analysis for that constituent.

C. Minimum Levels. For compliance monitoring, analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L approximately equal to parts per billion (ppb).

According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the Reporting Level. Application of such factors will alter the Reporting Level from the Minimum Level for the analysis. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level value is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. The table below indicates the highest minimum level that the Discharger's laboratory must achieve for calibration purposes.

CTR #	Constituent	Minimum Levels for Types of Analytical Methods [a]				
		ICPMS	GC	GCMS	SPGFAA	Color
6.	Copper	0.5			2	
14.	Cyanide					5
18.	Acrylonitrile		2	2		
21.	Carbon Tetrachloride		0.5			
23.	Chlorodibromomethane		0.5			
27.	Dichlorobromomethane		0.5			
29.	1,2 -Dichloroethane		0.5			
30.	1,1-Dichloroethylene		0.5			
31.	1,2-Dichloropropane		0.5			
37.	1,1,2,2-Tetrachloroethane		0.5			
42.	1,1,2-Trichloroethane		0.5			
53.	Pentachlorophenol		1			
59.	Benzidine			5		
66.	Bis(2-Chloroethyl)Ether			1		
68.	Bis(2-Ethlhexyl)Phthalate			5		
78.	3,3-Dichlorobenzidine			5		
82.	2,4-Dinitrotoluene			5		
85.	1,2-Diphenylhydrazine			1		
88.	Hexachlorobenzene			1		
89.	Hexachlorobutadiene			1		
91.	Hexachloroethane			1		
93.	Isophorone			1		
96.	N-Nitrosodimethylamine			5		
97.	N-Nitrosodi-n-Propylamine			5		
98.	N-Nitrosodiphenylamine			1		
102.	Aldrin		0.005			
103.	alpha-BHC		0.01			
104.	beta-BHC		0.005			
105.	gamma-BHC		0.02			
108.	4,4'-DDT		0.01			
109.	4,4'DDE		0.05			
110.	4,4'DDD		0.05			
111.	Dieldrin		0.01			
112.	alpha-Endosulfan		0.02			
113.	beta-Endosulfan		0.01			
115.	Endrin		0.01			
117.	Heptachlor		0.01			
118.	Heptachlor Epoxide		0.01			
126.	Toxaphene		0.5			

[a] Laboratory techniques are defined as follows:

ICPMS = Inductively Coupled Plasma/Mass Spectrometry;
GC = Gas Chromatography;
GCMS = Gas Chromatography/Mass Spectrometry;
SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption; and
Color = Colorimetric

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	M-001	At any point in the outfall from USS-POSCO's treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present.
002	M-002	At any point in the outfall between the point of discharge and at which all waste tributary to that outfall is present.
--	R-001	At a point in New York Slough, located within 20 feet of shore, 100 feet easterly of 001.
--	R-002	At a point in New York Slough, located within 20 feet of shore, 100 feet westerly of 001.
--	R-003	At a point in New York Slough, located 100 feet northerly of 001.
--	R-004	At a point in New York Slough, Located 300 feet northerly of 001.
Rainfall	R-1	The nearest official National Weather Service rainfall station or other station acceptable to the Executive Officer.
Contra Costa Canal	I-001	At any point in the intake line to the Facility, approximately 200 yards west of Loveridge Road, prior to any alteration, or process use in the Facility.
San Joaquin River	I-002	At any point after the intake pump, located approximately 1000 feet west of the Facility's dock, prior to any alteration, or process use in the Facility.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations – I-001 and I-002

The Discharger shall monitor Contra Costa Canal and San Joaquin River intake waters at Monitoring Locations I-001 and I-002 as follows:

Parameter	Units[1]	Sample Type[2]	Minimum Sampling Frequency	Required Analytical Test Methods
Flow Rate	MGD	Continuous	Daily	
Copper	µg/L	C-24	Monthly	EPA 200.9

[1] Unit Abbreviations:
MGD = million gallons per day
µg/L = micrograms per liter

[2] Sample Type Abbreviations:
Continuous = Measured continuously, and recorded and reported daily
C-24 = 24-hour composite

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location – M-001

The Discharger shall monitor combined industrial process wastewater, cooling water, and storm water at M-001 as follows:

Parameter	Units[1]	Sample Type[2]	Minimum Sampling Frequency	Required Analytical Test Methods[8]
Flow Rate	MGD	Continuous	Daily	
pH	Standard Units	Continuous	Daily	
Temperature	°F	Continuous	Daily	
Total Suspended Solids	mg/L & lbs/day	C-24	Monthly	SM 2540 D
Settleable Matter	ml/l/hr	Grab[4]	Monthly	SM 2540 F
Oil & Grease[3]	mg/L & lbs/day	Grab[4]	Monthly	EPA 1664
Copper	µg/L	C-24	Monthly	EPA 200.9
Cyanide[5]	µg/L	Grab[4]	Monthly	SM 4500-CN^- C or I
Mercury	µg/L	Grab[4]	Quarterly	[6]
Selenium	µg/L	C-24	Quarterly	SM 3114B or C
Lead	µg/L & lbs/day	C-24	Monthly	EPA 200.9
Zinc	µg/L & lbs/day	C-24	Monthly	EPA 200 or 289
Total Chromium	µg/L & lbs/day	C-24	Monthly	SM 3500
Total Nickel	µg/L & lbs/day	C-24	Monthly	EPA 249.2
Total Silver	µg/L & lbs/day	C-24	Monthly	EPA 272.2
Naphthalene	µg/L & lbs/day	C-24	Monthly	EPA 625
Chlorodibromomethane	µg/L	Grab[4]	Twice/year (1/wet, 1/dry season)	EPA 601
Dichlorobromomethane	µg/L	Grab[4]	Twice/year (1/wet, 1/dry season)	EPA 601
Tetrachloroethylene	µg/L & lbs/day	Grab[4]	Monthly	EPA 601
Acute Toxicity	Percent Survival	C-24	Every two weeks	
Chronic Toxicity	TU_c	C-24	Quarterly	
2,3,7,8-TCDD and congeners[7]	pg/L	Grab[4]	Annually	EPA Method 1613
Tributyltin	µg/L	Grab[4]	Annually	Batelle N-0959-2606, or SM 6710 (online version only)
August 6, 2001 Letter, Table 1 Selected Constituents (except those listed above), metals.	µg/L	Grab[4]	Monthly	
August 6, 2001 Letter, Table 1 Selected Constituents (except those listed above), organics.	µg/L	Grab[4]	Annually	

[1] Unit Abbreviations:
MGD = million gallons per day
°F = degree Fahrenheit
lbs/day = pounds per day
mg/L = milligrams per liter
pg/L = picograms per liter
µg/L = micrograms per liter
TU_c = chronic toxicity unit

[2] Sample Type Abbreviations:
Continuous = Measured continuously, and recorded and reported daily
C-24 = 24-hour composite

[3] Oil & Grease Monitoring: Each Oil & Grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite sample for extraction and analysis.

[4] Grab Samples shall be collected coincident with composite samples collected for the analysis of regulated parameters.

[5] Cyanide: Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[6] Mercury: The Discharger shall use ultra-clean sampling (USEPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245), if that alternate method has a Minimum Level of 2 ng/L (0.002 µg/L) or less.

[7] 2,3,7,8-TCDD and congeners. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the USEPA method 1613 Minimum Levels. Alternative methods of analysis must be approved by the Executive Officer. In addition to reporting results for each of the 17 congeners, the TCDD TEQ shall be calculated and reported using 1998 USEPA Toxicity Equivalent Factors for dioxin and furan congeners.

[8] The Discharger has the option of substituting another method for those listed in this table, but only if that method has a level of quantification below the applicable criterion or below the lowest ML listed in section I.C of this MRP. This alternate method must also be USEPA approved.

B. Monitoring Location – M-002

The Discharger shall monitor storm water at M-002 as follows:

Parameter	Units[1]	Sample Type	Minimum Sampling Frequency [2]	Required Analytical Test Method
Flow	mgd	--	Each occurrence	
duration	minutes	--	Each occurrence	
pH	Standard Units	Grab	Each occurrence	
Total Suspended Solids	mg/L	Grab	Each occurrence	
Oil & Grease	mg/L	Grab	Each occurrence	
Specific Conductance	µmhos/cm	Grab	Each occurrence	

[1] Unit Abbreviations:
mg/L = milligrams per liter
µmhos/cm = micro-ohms per centimeter
mgd = million gallons per day

[2] Each occurrence. Significant storm water discharges shall be monitored during at least one storm event per month. These are continuous discharges of storm water for a minimum of one hour, or an intermittent discharge of storm water for a minimum of three hours in a 12-hour period.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Whole Effluent Acute Toxicity

Compliance with whole acute toxicity requirements of this Order shall be achieved in accordance with the following:

1. Acute toxicity effluent limits shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through bioassays;

2. Test organism shall be rainbow trout unless specified otherwise in writing by the Executive Officer; and

3. All bioassays shall be performed according to 40 CFR 136, currently the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms", 5th Edition. Exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

B. Whole Effluent Chronic Toxicity

1. The previous permit required the Discharger to perform toxicity testing on Red Abalone (*Haliotis rufescens*) for compliance determination. Compliance with this Order retains that requirement to perform critical life stage toxicity test(s) on Red Abalone (*Haliotis rufescens)*.

   The previous permit also required an effluent chronic toxicity screening as part of the Discharger's application for permit reissuance (The Screening Study). The Discharger is currently completing The Screening Study to identify the most sensitive species. Upon receipt of the Discharger's Screening Study, the Executive Officer shall have 45 days to review and approve the most sensitive species to be used in chronic toxicity testing. If the Executive Officer does not comment on the results of The Screening Study, the proposed species found in the screening program is deemed approved. Subsequently, the chronic toxicity effluent limits of this Order shall be evaluated by measuring the critical life stage toxicity test(s) and the newly identified most sensitive test species.

2. The Discharger shall also conduct screening phase compliance monitoring under either of the following conditions:

   a. Subsequent to any significant change in the nature of the treatment plant effluent through changes in sources or treatment, except those changes resulting from reduction in pollutant concentrations attributable to pretreatment, source control, and waste minimization efforts; or,

   b. Prior to permit reissuance.

   Chronic Toxicity Monitoring Screening Phase Requirements for screening phase testing, Critical Life Stage Toxicity Tests, and definitions of terms used in the chronic toxicity monitoring are identified in Attachment G of this Order.

C. Toxicity Reduction Evaluation

The toxicity reduction evaluation (TRE) shall be conducted in accordance with the following:

1. The Discharger shall prepare and submit to the Regional Water Board for Executive Officer approval a TRE workplan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.

2. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.

3. The TRE shall be conducted in accordance with an approved workplan.

4. The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including USEPA guidance materials. The TRE should be conducted as a tiered evaluation process, such as summarized below:

   a. Tier 1 consists of basic data collection (routine and accelerated monitoring).

   b. Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.

   c. Tier 3 consists of a toxicity identification evaluation (TIE).

   d. Tier 4 consists of an evaluation of options for additional effluent treatment processes.

   e. Tier 5 consists of an evaluation of options for modifications of in-plant treatment processes.

   f. Tier 6 consists of implementation of selected toxicity control measures, as well as follow-up monitoring and confirmation of implementation success.

5. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.

6. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies should be employed.

7. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

8. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of compliance with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

9. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of the causes and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – N/A

VII. RECLAMATION MONITORING REQUIREMENTS – N/A

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations – R-001, R-002, R-003, and R-004

1. The Discharger shall monitor New York Slough at R-001, R-002, R-003, and R-004 as follows:

Parameter	Units[1]	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	Standard Units	Grab	Annually	
Temperature	°F	Grab	Annually	
Dissolved Oxygen	mg/L	Grab	Annually	
Sulfides[2]	mg/L	Grab	Annually	
Standard Observations[3]		Visual	Annually	

[1] Unit Abbreviations:
°F = degree Fahrenheit
mg/L = milligrams per liter

[2] Receiving water analysis for sulfides shall be run when dissolved oxygen is less than 5.0 mg/L.

[3] Standard Observations include:
a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter), presence or absence, source, and size of affected area.
b. Discoloration and turbidity: description of color, source, and size of affected area.
c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
d. Hydrographic condition:
   1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).
   2) Depth of water columns and sampling depths.
e. Weather conditions:
   1) Air temperatures.
   2) Wind-direction and estimated velocity.
   3) Total precipitation during the previous five days and on the day of observation.

IX. OTHER MONITORING REQUIREMENTS

A. Regional Monitoring Program

The Discharger has agreed to continue to participate in the Regional Monitoring Program, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary. The Discharger's participation and support of the RMP is used in consideration of in the level of receiving water monitoring required by this Order.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachment D and G) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given,

the Discharger shall submit self-monitoring reports in accordance with the requirements described below.

2. The Discharger shall submit monthly Self Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due 30 days after the end of each calendar month.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Effective date of permit	All	First day of second calendar month following month of sampling
Every two weeks	Effective date of permit	Sunday through Saturday	First day of second calendar month following month of sampling
Once / month	Effective date of permit	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
Once / quarter	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Once / semi-annual period	Effective date of permit	January 1 through June 30 July 1 through December 31	August 1 February 1
Once / year	Effective date of permit	January 1 through December 31	February 1

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. The Discharger shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.

6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D and H), to the address listed below:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   ATTN: NPDES Permit Division

8. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supercede.

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   State Water Resources Control Board
   Discharge Monitoring Report Processing Center
   Post Office Box 671
   Sacramento, CA 95812

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

D. Other Reports

1. **Annual Reports.** By February 1st of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (Attachment H).

Attachment F – Fact Sheet – Table of Contents

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	**2 071059001**
Discharger	**USS POSCO Industries**
Name of Facility	**Pittsburg Plant**
Facility Address	**900 Loveridge Road**
	Pittsburg, CA 94565
	Contra Costa
Facility Contact, Title and Phone	**David Allen, Sr. Environmental Engineer, (925) 439-6290**
Authorized Person to Sign and Submit Reports	**David Allen, Sr. Environmental Engineer, (925) 439-6290**
Mailing Address	**P. O. Box 471, MS#67, Pittsburg, CA 94565**
Billing Address	**SAME**
Type of Facility	**Industrial with SIC code 3312**
Major or Minor Facility	**Major**
Threat to Water Quality	**1**
Complexity	**A**
Pretreatment Program	**Yes**
Reclamation Requirements	**None**
Facility Permitted Flow	**Average Flow of 11.1 million gallons per day**
Facility Design Flow	**28 million gallons per day**
Watershed	**Suisun Basin**
Receiving Water	**New York Slough, a water body of the Sacrament-San Joaquin Delta**
Receiving Water Type	**Surface Water**

A. USS-POSCO Industries (hereinafter Discharger) owns the property at 900 Loveridge Road in the City of Pittsburg on which the Facility is located.

B. The Facility discharges wastewater to New York Slough, a water of the United States and a contiguous water body of the Sacramento-San Joaquin Delta, and is currently regulated by Order 00-130 which was adopted on November 29, 2000, and expired on November 29, 2005. The terms of the previous permit automatically continued in effect after the permit expiration date.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on May 31, 2005.

II. FACILITY DESCRIPTION

The Discharger owns and operates a steel finishing plant. The Facility is located on 490-acres in Contra Costa County. The Facility receives and processes coils of hot rolled steel, producing as principal products: cold-rolled, galvanized, and tin and chromium coated steel coils. The Facility "finishes" steel, but does not "manufacture" steel from raw materials. Processes used in the

finishing are hydrochloric and sulfuric acid pickling, cold rolling, cleaning, annealing, hot dip galvanizing, and electrolytic tin and chromium plating.

A. Description of Wastewater Treatment

The Facility's collection system transports all processed wastewater, cooling waters, and storm water runoff to the wastewater treatment plant. In addition, the wastewater treatment facility may receive a maximum of 5 million gallons per year of waste from impoundments and monitoring well sampling. Treatment of this combined wastewater consists of a pH adjustment, oil skimming, lime flocculation, clarification, and a final pH adjustment.

B. Discharge Points and Receiving Waters

1. **Discharge Point 001.** The Facility discharges an average of 11.1 million gallons per day of treated wastewater from a surface outfall located at latitude 38° 01' 48" and longitude 121° 51' 32" to New York Slough.

2. **Discharge Point 002.** All storm water is diverted to the Facility's wastewater treatment plant, except during occurrences when it cannot handle the volume. During these occurrences, if the storm water sump reaches its capacity, the storm water overflows a weir and is discharged from Discharge Point 002, located at latitude 38° 01' 51" and longitude 121° 51' 58". Discharges from Discharge Point 002 usually only occurs during rainfall intensities greater than a 2-year, 24-hour storm events. During the years 2001 through 2005, thirteen discharge events occurred from Discharge Point 002, and the following table presents the quality of the storm water runoff.

Parameter	Date	Monthly	Daily Maximum
Flow (million gallons per minute)	12/2005	0.15	0.12
Duration (minutes)	12/2005	320	240
pH maximum (standard units)	1/8/2005	--	8.34
pH minimum (standard units)	10/26/04		6.96
Oil and Grease (mg/L)	10/26/04		1.8

   a. **Regulations**. Federal regulations for storm water discharges were promulgated by the USEPA on November 19, 1990. The regulations [40 CFR Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain an NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges. The Discharger diverts most storm water from the Facility to its wastewater treatment facility. During 2-year, 24-hour storm events, volumes of storm water that the treatment facility cannot manage is discharged through Discharge Point 002.

   b. **Exemption from Coverage under Statewide Storm Water General Permit**. The State Water Resources Control Board's (the State Board's) statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001- the General Permit) was adopted on November 19, 1991, amended on September 17, 1992, and reissued on April 17, 1997. The Discharger is not required to be covered under the General Permit because all storm water discharges are covered

under this Order. The Discharger has implemented a storm water pollution prevention plan according to Provision VI.C.3 of this Order.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. **Discharge Point 001.** Effluent limitations contained in the previous permit for discharges from E-001 (now Discharge Point 001) and representative monitoring data from the term of the previous permit are as follows:

Parameter (units)	Effluent Limitation		Monitoring Data (2001 – 2005)	
	Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Total Suspended Solids (kg/day)	919	2,015	1262.8	1389.2
Settleable Solids (ml/l/hr)	0.1	0.2	0.05	0.05
Oil & Grease (kg/day)	432	1,073	898.5	898.5
Phenolic Compounds (lb/day)	18	37	12.53	12.53
Total Chromium (lb/day)	33	55	9.64	11.72
Lead (lb/day)	11.3	23.4	<0.09	<0.09
Lead ((µg/L)	1.6	3.2	0.62	0.62
Nickel (lb/day)	54.2	75.9	0.45	0.4
Nickel (µg/L)		7.1		7.7
Zinc (lb/day)	31.1	61	1.23	4.18
Zinc (µg/L)	18	58	18	63
Iron (dissolved) (lb/day)	6.6	19.8	15.33	21.5
Naphthalene (lb/day)		0.62		0.112
Tetrachloroethylene (lb/day)		0.93		<0.12
Chromium (VI) (µg/L)	5.5	11	4.3	4.3
Copper (µg/L)		4.9		7.6
Mercury (µg/L)		0.68		0.013

2. **Discharge Point 002.** This Order retains the effluent limitations contained in the previous permit for discharges from E-002 (now Discharge Point 002). Representative monitoring data from the term of the previous permit are as follows:

Parameter (units)	Effluent Limitation		Monitoring Data (2002 – 2005)	
	Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Oil & Grease (mg/L)		15	<1.8	<1.8
pH (standard units)		Range 6.5 – 8.5		Range 6.9 – 8.34

D. Compliance Summary. The following table summarizes the number of effluent limitation exceedances for Discharge Point 001 during the previous permit period. No exceedances occurred at Discharge Point 002.

Parameter	Number of Exceedances for the Year				
	2001	2002	2003	2004	2005
pH Maximum	1				1
Chronic Toxicity Median (% Survival)	2	4	2	2	1
Chronic Toxicity 90th% (% Survival)	2	4	1	2	
Copper Daily Maximum					1
Nickel Daily Maximum		1			
Zinc Daily Maximum			1		

E. Planned Changes – N/A

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

1. This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

2. NPDES Permit/USEPA concurrence are based on 40 CFR 123.

3. Order expiration and reapplication are based on 40 CFR 122.46(a).

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Basin (Region 2) (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Regional Water Board amended the Basin Plan (Resolution No. R2-2004-0003) on January 21, 2004. The State Water Board and the Office of Administrative Law approved these amendments on July 22, 2004, and October 4, 2004, respectively. The USEPA gave final approval to the amendment on January, 5, 2005.

   The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for New York Slough, a contiguous water body of the Sacramento-San Joaquin Delta, but does identify present and potential uses for the Sacramento-San Joaquin Delta. In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Thus, beneficial uses applicable to New York Slough are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Sacramento-San Joaquin Delta	Agricultural Supply (AGR), Municipal and Domestic Supply (MUN), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PROC), Ocean Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Water Contact Recreation (REC-1), Noncontact Water Recreation (REC-2), Fish Spawning (SPWN), Wildlife Habitat (WILD), and Navigation (NAV).

The Basin Plan (Table 4-1) contains a prohibition of discharge of any wastewater which has particular constituents of concern to beneficial uses (1) at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or (2) into any non-tidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.

Exceptions will be considered by the Regional Water Board where a discharger meets the following requirements: (1) completion of a source identification study, (2) development and implementation of a source reduction plan, and (3) commitment of resources to fully implement the source control and reduction plan. In a report dated November 6, 1996, the Discharger demonstrated that it has met these requirements. Thus, in the previous permit, the Regional Water Board determined that an exception to the discharge prohibition is warranted for the Discharger's shallow water discharge to New York Slough. This Order retains the Regional Water Board's determination that the discharge prohibition does not apply to the Discharger's shallow water discharge.

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.

   On November 16, 1976, the Regional Water Board granted the Discharger exemptions regarding the maximum temperature of discharge (Resolution No. 76-16). The State Water Board upheld the exemptions on December 20, 1979, (Resolution No. 79-108) concurring with the Regional Water Board and finding that the maximum discharge temperature of 93°F would not compromise the protection and propagation of a balance indigenous population of shellfish, fish, and wildlife.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

4. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate

test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The State Water Board amended the SIP on February 24, 2005, and the amendments became effective on May 31, 2005. The SIP includes procedures for determining the need for and calculating water quality-based effluent limitations (WQBELs), and requires Dischargers to submit data sufficient to do so.

5. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the Federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the Federal antidegradation policy. Resolution 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous permit. As discussed in this Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and Federal regulations.

7. **Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement Federal and State requirements. This MRP is provided in Attachment E. The MRP may be amended by the Executive Officer pursuant to USEPA regulation 40 CFR 122.62, 122.63, and 124.5.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 303(d) list), prepared pursuant to provisions of Section 303(d) of the Federal CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Sacramento-San Joaquin Delta is listed as an impaired waterbody. The pollutants impairing the Sacramento-San Joaquin Delta include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, total PCBs, PCBs (dioxin like), and selenium. Copper, which was previously identified as impairing Sacramento-San Joaquin Delta, was not included as an impairing pollutant in the 303(d) list and has been placed on the new Monitoring List. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

1. **Total Maximum Daily Loads.** The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list in Sacramento-San Joaquin Delta

within the next ten years. Future review of the 303(d)-list for Sacramento-San Joaquin Delta may result in revision of the schedules, provide schedules for other pollutants, or both.

2. **Waste Load Allocations.** The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. The final effluent limitations for this Discharger will be based on WLAs that are derived from the TMDLs.

3. **Implementation Strategy.** The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

   a. **Data Collection.** The Regional Water Board has given the dischargers the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including Sacramento-San Joaquin Delta.

   b. **Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

E. Other Plans, Polices and Regulations – N/A

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations; and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established. Three options exist to protect water quality: 1) 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

This Order contains restrictions on individual pollutants that are no more stringent than required by the Federal Clean Water Act. Individual pollutant restrictions consist of water quality-based effluent limitations that have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been

approved pursuant to Federal law and are the applicable Federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the California Toxics Rule, the California Toxics Rule is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA prior to May 1, 2001, or Basin Plan provisions approved by USEPA on May 29, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 CFR 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than the applicable water quality standards for purposes of the Clean Water Act.

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows:

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge other than as described in this Order).** This prohibition is the same as on the previous permit, and is based on the CWC 13260 that requires filing of a report of waste discharge (ROWD) before a permit to discharge can be granted. The Discharger submitted a ROWD, dated June 1, 2005, for permission to discharge as specified in this permit, thus any discharges other than as described in this Order are prohibited.

2. **Prohibition III.B (No bypass or overflow):** This prohibition is based on best professional judgment (BPJ).

B. Technology-Based Effluent Limitations for Discharge Point 001 and Discharge Point 002. The technology-based effluent limitations consists of restrictions on TSS, oil and grease, lead, zinc, total chromium, total nickel, total silver, naphthalene, tetrachloroethylene, and settleable matter. Restrictions on these pollutants are specified in Federal regulations, and this permit's technology-based pollutant restrictions are no more stringent than required by the Clean Water Act.

1. **Scope and Authority.** The CWA requires USEPA to develop effluent limitation guidelines and pretreatment standards (ELGs) representing application of Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT). The Facility is classified as subcategory "steel finishing" of Iron and Steel Manufacturing facilities as defined by the USEPA in 40 CFR § 420. In addition, the Discharger is also classified as subcategory "metal finishing" as defined by 40 CFR § 433. Therefore, the USEPA ELGs for the Iron and Steel Manufacturing Point Sources (40 CFR § 420 Subcategories I: Acid pickling, J: Cold forming, K: Alkaline cleaning, and L: Hot coating) and for Metal Finishing Point Source (40 CFR § 433, Subcategory A: Electroplating) based on BAT, BPT, and BCT,

whichever are more stringent, are applicable to the Discharger.

2. Applicable Technology-Based Effluent Limitations.

a. Discharge Point 001. This section contains production-based mass emission limits for the following constituents: total suspended solids (TSS), oil & grease, lead, zinc, naphthalene, and tetrachloroethylene based on 40 CFR § 420 Subcategories I, J, K, and L; and also TSS, oil & grease, total lead, total chromium, total nickel, and total silver based on 40 CFR § 433, Subcategory A. The application of these guidelines and standards is based on production rates at the Facility. In calculating currently applicable effluent limitations, Regional Water Board staff has used the average daily production rates based on the years 2000 through 2005. Attachment 1 of this Fact Sheet shows the methodology and data used to calculate the technology-based effluent limitations. The Facility's ability to comply with the following technology-based effluent limits has been demonstrated by existing plant performance.

Parameter (lbs/day)	Technology-based Effluent Limitations	
	Average Monthly	Maximum Daily
TSS	2365	5139
Oil and Grease	1025	2391
Lead	15.5	31.5
Zinc	5.6	16.9
Total Chromium	42.8	69.4
Total Nickel	59.6	99.6
Total Silver	6.0	10.8
Napthalene		0.68
Tetrachloroethylene		1.03
Settleable matter (ml/l/hr)	0.1	0.2

Settleable Matter. This effluent limitation is unchanged from the previous permit, and is based on the Basin Plan (Chapter 4, Table 4-2).

b. Discharge Point 002. This Order retains the technology-based effluent limitations contained in the previous permit for discharges from Discharge Point 002 for pH, and oil & grease. These technology-based effluent limitations are based on the Basin Plan, 40 CFR § 420.08, and BPJ.

Parameter	Technology-based Effluent Limitations		
	Instantaneous Minimum	Instantaneous Maximum	Maximum Daily
pH (Standard Units)	6.5	8.5	
Oil and Grease (mg/L)			15

C. Water Quality-Based Effluent Limitations (WQBELs) for Discharge Point 001. Water quality-based effluent limitations (WQBELs) have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to Federal law and are the applicable Federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the California Toxics Rule, the California Toxics Rule is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was

approved by USEPA prior to May 1, 2001, or Basin Plan provisions approved by USEPA on May 29, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 CFR 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order (specifically copper, cyanide, chlorodibromomethane and dichlorobromomethane) were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than the applicable water quality standards for purposes of the Clean Water Act.

1. Scope and Authority

a. As specified in 40 CFR §122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." (Reasonable Potential) The process for determining Reasonable Potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or water quality criteria contained in the CTR and NTR.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs).

1) **NPDES Regulations.** NPDES regulations at 40 CFR Part 122.45(d) state: "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

2) **SIP**. The SIP (page 8, Section 1.4) requires WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs).

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives
The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan, the CTR, and the NTR.

a. Basin Plan. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c., below). The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that

produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

b. CTR. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

c. NTR. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this Discharger.

d. Technical Support Document for Water Quality-Based Toxics Controls. Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR Part 122.44(d) specifies that WQBELs may be set based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses. Regional Water Board staff used best professional judgment (BPJs) to detemine the WQOs, WQCs, WQBELs, and calculations contained in this Order as defined by USEPA's March 1991 Technical Support Document for Water Quality-Based Toxics Control (the TSD).

e. Basin Plan Receiving Water Salinity Policy. The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria, (the latter calculated based on ambient hardness), for each substance.

1) Salinity. The receiving water for the subject discharge is New York Slough, which is a tidally influenced waterbody, with significant fresh water inflows during the wet seasons when Sacramento-San Joaquin Delta outflow is the highest (Jan-April). Regional Water Board staff evaluated salinity data for New York Slough, which was collected by Delta Diablo Sanitation District during the period of February 1998 through December. These data indicate the receiving water is estuarine by the CTR. Furthermore, Sacramento-San Joaquin Delta and Suisun Bay are identified as supporting estuarine habitat in the Basin Plan; therefore, this receiving water falls under the Basin

Plan's definition for estuarine water, and the effluent limitations in this Order are based on the more stringent of fresh and saltwater objectives/criteria.

f. **Receiving Water Hardness.** Some WQOs/WQC are hardness dependent. The City of Antioch's receiving water sampling-station is located upstream, approximately two miles east of the Discharger's outfall, and therefore is representative of the Discharger's receiving water. 1734 receiving water hardness data values were obtained during May 1995 through December 2001 at the City of Antioch's receiving water sampling-station. The minimum observed hardness data value is 32 mg/L and the maximum value is 1100 mg/L. Section F.2.f Hardness, of the CTR (page 31692), states that the derivations of criteria are most accurate between the hardness values of 25 mg/L to 400 mg/L, and therefore Regional Water Board staff censored this receiving water data by eliminating all hardness values above 400 mg/L. This censored receiving water data set contains 1478 hardness data values. To determine a representative hardness value for the CTR's intended level of protection from this censored data set, Regional Water Board staff used the adjusted geometric mean (AGM), which is the same method used in determining the Water-Effect Ratio (It is believed that hardness plays a similar role as the Water-Effect Ratio in influencing the toxicity of metals). AGM is the value that 30% of the data points fall below the AGM, and from this censored receiving water data, the AGM is calculated to be 68 mg/L. The following lists the procedure to calculate an AGM:

1) Calculate the logarithms of each hardness value.
2) Calculate the arithmetic mean of the logarithms.
3) Calculate the standard deviation(s) of the logarithms.
4) Calculate the standard error (SE) of the arithmetic mean:
   $SE = s/\sqrt{n}$
5) Calculate A = arithmetic mean – $t_{0.7}$ x SE
   where $t_{0.7}$ is the value of Student's *t* statistics for a one-sided probability of 0.7 with *n*-1 degrees of freedom, *n*-sample size. When the Sample size is large, the Student t statistics can be approximate by the normal distribution z-statistics. With a sample size of 1478, $t_{0.7} = 0.524$.
6) Take the antilogarithm of A, antilog A is the Adjusted Geometric Mean (AGM).

3. **Determining the Need for WQBELs.** Assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required.

a. For the following non-priority pollutants, Regional Water Board staff used available monitoring data, receiving water's designated uses, and/or previous permit pollutant limitations to determine Reasonable Potential.

1) **pH.** This effluent limitation is unchanged from the previous permit, and is based on the Basin Plan (Chapter 4, Table 4-2).

2) **Temperature.** The State's Thermal Plan indicates that for existing discharges to Enclosed Bays (e.g., San Francisco Bay), discharges shall comply with limitations necessary to assure protection of beneficial uses. The Discharger conducted a Thermal Study, dated June 1973, that concluded elevated temperatures in Discharge Point 001 do not adversely affect beneficial uses as permitted under the previous

permit. The Thermal Study found that the thermal plume predominately occurs near the surface, and the location and magnitude of the plume changes significantly based on the tidal cycle. The Regional Water Board in Resolution No. 76-16 and the State Water Board in Resolution No 79-108 granted the Discharger an exception to the Thermal Plan. This effluent limitation is unchanged from the previous permits, and is based on BPJ, Regional Water Board Resolution No. 76-16, and State Water Board Resolution No. 79-108.

b. Reasonable Potential Analysis. For priority pollutants, Regional Water Board staff analyzed the Discharger's self-monitoring effluent data (from the years 2002 through 2005) and ambient background data, and considered the nature of the Facility's operations to determine if the discharge from Discharge Point 001 demonstrates Reasonable Potential. Using the method prescribed in Section 1.3 of the SIP, Regional Water Board staff compared the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from USEPA, the NTR, and the CTR ("Reasonable Potential Analysis" or "RPA"). The Basin Plan objectives and CTR criteria are shown in Attachment 2 of this Fact Sheet.

The RPA identifies the observed MEC in the effluent for each pollutant, based on effluent concentration data. There are three triggers in determining Reasonable Potential:

1) The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC ≥ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B>WQO) and the pollutant was detected in any of the effluent samples.

3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

c. Ambient Background Data Used in the RPA. For the RPA, ambient background concentrations are the observed maximum water column concentrations. The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

With this in mind, the Sacramento River Station fits the guidance for ambient background in the SIP compared to other stations in the Regional Monitoring Program (RMP). Section 1.4.3 of the SIP specifies that "preference should be given to…concentrations immediately upstream or near the discharge, but not within an allowed mixing zone for the discharge." The SIP further states that data are applicable

if they are "representative of the ambient receiving water column that will mix with the discharge." The Sacramento River station is upstream, not within a mixing zone, and does represent water that will mix with the discharge. The Sacramento River is the primary source of fresh inflow water to the Sacramento-San Joaquin Delta, which flows to Suisun Bay. Salt water also influences Suisun Bay through diurnal tidal currents but its influence is generally less during the wet seasons when Sacramento-San Joaquin Delta outflow is the highest (Jan-April).

WQBELs were calculated using RMP data from 2000 through 2005 for the Sacramento River Station. However, not all the constituents listed in the CTR were analyzed by the RMP during this time. The August 6, 2001 Letter addressed this data gap by requiring the Discharger to conduct additional monitoring.

d. RPA Determination. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used, and Reasonable Potential conclusions from the RPA are listed in the following table for all constituents analyzed. Some of the constituents in the CTR were not determined because of the lack of an objective/criteria or effluent data. Based on the RPA methodology in the SIP, some constituents did not demonstrate Reasonable Potential. The RPA results are shown below and Attachment 2 of this Fact Sheet. The pollutants that exhibit Reasonable Potential are copper, cyanide, and chlorodibromomethane, and dichlorobromomethane.

CTR #	PRIORITY POLLUTANTS (µg/L)	MEC or Minimum DL[1]	Governing WQO/WQC	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
1	Antimony	**1.9**	14	**0.337**	No
2	Arsenic	**16**	36	**2.42**	No
3	Beryllium	**0.17**	No Criteria	**0.126**	Undetermined
4	Cadmium	**0.44**	1.82	**0.04**	No
5a	Chromium (III or Total)	**130**	150.92	Not Available	No
5b	Chromium (VI)	**4.3**	11.43	Not Available	No
6	Copper	**7.6**	3.73	**4.613**	Yes
7	Lead	**0.62**	1.95	**1.1278**	No
8	Mercury	**0.01295**	0.025	**0.0108**	No
9	Nickel	**7.7**	8.28	**6.5**	No
10	Selenium	2	5.0	**0.133**	No
11	Silver	1	2.09	**0.01**	No
12	Thallium	1	1.7	Not Available	No
13	Zinc	**63**	85.62	**7.022**	No
14	Cyanide	**5.9**	1.0	**0.5**	Yes
16	2,3,7,8-TCDD (Dioxin)	6.4E-07	1.3E-08	**4.8E-08**	Undetermined
17	Acrolein	20	320	0.5	No
18	Acrylonitrile	20	0.059	0.02	No
19	Benzene	1	1.2	0.3	No
20	Bromoform	**0.15**	4.3	0.5	No
21	Carbon Tetrachloride	1	0.25	**0.06**	No
22	Chlorobenzene	1	680	0.5	No
23	Chlorodibromomethane	**1.9**	0.41	0.5	Yes
24	Chloroethane	1	No Criteria	0.5	Undetermined
25	2-Chloroethylvinyl Ether	2	No Criteria	0.5	Undetermined
26	Chloroform	**3.5**	No Criteria	0.5	Undetermined
27	Dichlorobromomethane	**1.9**	0.56	0.5	Yes
28	1,1-Dichloroethane	1	No Criteria	0.5	Undetermined
29	1,2-Dichloroethane	1	0.38	**0.04**	No
30	1,1-Dichloroethylene	1	0.057	0.5	No
31	1,2-Dichloropropane	1	0.52	0.5	No
32	1,3-Dichloropropylene	1	10	Not Available	Cannot determine
33	Ethylbenzene	1	3100	0.5	No
34	Methyl Bromide	1	48	0.5	No
35	Methyl Chloride	1	No Criteria	0.5	Undetermined
36	Methylene Chloride	1	4.7	0.5	No
37	1,1,2,2-Tetrachloroethane	1	0.17	0.5	No
38	Tetrachloroethylene	0.65	0.8	0.5	No
39	Toluene	1	6800	0.3	No
40	1,2-Trans-Dichloroethylene	1	700	0.5	No

CTR #	PRIORITY POLLUTANTS (µg/L)	MEC or Minimum DL[1]	Governing WQO/WQC	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
41	1,1,1-Trichloroethane	1	No Criteria	0.5	Undetermined
42	1,1,2-Trichloroethane	1	0.6	0.5	No
43	Trichloroethylene	1	2.7	0.5	No
44	Vinyl Chloride	1	2	0.5	No
45	2-Chlorophenol	0.94	120	1.2	No
46	2,4-Dichlorophenol	0.94	93	1.3	No
47	2,4-Dimethylphenol	0.94	540	1.3	No
48	2-Methyl-4,6-Dinitrophenol	**0.87**	13.4	1.2	No
49	2,4-Dinitrophenol	**3.5**	70	0.7	No
50	2-Nitrophenol	**3**	No Criteria	1.3	Undetermined
51	4-Nitrophenol	**5.7**	No Criteria	1.6	Undetermined
52	3-Methyl-4-Chlorophenol	0.94	No Criteria	1.1	Undetermined
53	Pentachlorophenol	9.5	0.28	1	No
54	Phenol	**49**	21000	1.3	No
55	2,4,6-Trichlorophenol	1.9	2.1	1.3	No
56	Acenaphthene	2	1200	**0.00024**	No
57	Acenaphthylene	1	No Criteria	**0.000059**	Undetermined
58	Anthracene	0.04	9600	**0.000197**	No
59	Benzidine	100	0.00012	**0.0015**	No
60	Benzo(a)Anthracene	0.08	0.0044	**0.0011**	No
61	Benzo(a)Pyrene	0.05	0.0044	**0.000822**	No
62	Benzo(b)Fluoranthene	0.02	0.0044	**0.0012**	No
63	Benzo(ghi)Perylene	0.08	No Criteria	**0.001246**	Undetermined
64	Benzo(k)Fluoranthene	0.02	0.0044	**0.000546**	No
65	Bis(2-Chloroethoxy)Methane	10	No Criteria	Not Available	Undetermined
66	Bis(2-Chloroethyl)Ether	10	0.031	0.3	No
67	Bis(2-Chloroisopropyl)Ether	10	1400	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	10	1.8	**0.68**	No
69	4-Bromophenyl Phenyl Ether	10	No Criteria	0.23	Undetermined
70	Butylbenzyl Phthalate	10	3000	**0.0065**	No
71	2-Chloronaphthalene	10	1700	**0.31**	No
72	4-Chlorophenyl Phenyl Ether	10	No Criteria	**0.31**	Undetermined
73	Chrysene	10	0.0044	**0.000997**	No
74	Dibenzo(a,h)Anthracene	0.2	0.0044	**0.000033**	No
75	1,2 Dichlorobenzene	1	2700	0.3	No
76	1,3 Dichlorobenzene	1	400	0.3	No
77	1,4 Dichlorobenzene	1	400	0.3	No
78	3,3-Dichlorobenzidine	50	0.04	0.001	No
79	Diethyl Phthalate	10	23000	0.21	No
80	Dimethyl Phthalate	10	313000	0.21	No
81	Di-n-Butyl Phthalate	10	2700	**1.72**	No
82	2,4-Dinitrotoluene	10	0.11	0.27	No
83	2,6-Dinitrotoluene	10	No Criteria	0.29	Undetermined
84	Di-n-Octyl Phthalate	10	No Criteria	0.38	Undetermined
85	1,2-Diphenylhydrazine	10	0.04	**0.0087**	No
86	Fluoranthene	0.1	300	**0.0028**	No
87	Fluorene	0.2	1300	**0.000352**	No
88	Hexachlorobenzene	10	0.00075	**0.000065**	No
89	Hexachlorobutadiene	10	0.44	0.3	No
90	Hexachlorocyclopentadiene	50	240	0.3	No
91	Hexachloroethane	10	1.9	0.2	No
92	Indeno(1,2,3-cd) Pyrene	0.1	0.0044	**0.00106**	No
93	Isophorone	10	8.4	0.3	No
94	Naphthalene	1	No Criteria	**0.00369**	Undetermined
95	Nitrobenzene	10	17	0.29	No
96	N-Nitrosodimethylamine	10	0.00069	0.3	No
97	N-Nitrosodi-n-Propylamine	10	0.005	0.001	No
98	N-Nitrosodiphenylamine	10	5	0.001	No
99	Phenanthrene	10	No Criteria	**0.00137**	Undetermined
100	Pyrene	0.2	960	**0.00261**	No
101	1,2,4-Trichlorobenzene	10	No Criteria	0.3	Undetermined
102	Aldrin	0.05	0.00013	0.00000006	No
103	alpha-BHC	0.05	0.0039	**0.0000404**	No
104	beta-BHC	0.05	0.014	**0.00005**	No
105	gamma-BHC	0.05	0.019	**0.0001047**	No
106	delta-BHC	0.05	No Criteria	0.00000072	Undetermined
107	Chlordane	0.05	0.00057	**0.0001428**	No
108	4,4'-DDT	0.1	0.00059	**0.0005463**	No
109	4,4'-DDE	0.1	0.00059	**0.000061**	No
110	4,4'-DDD	0.1	0.00083	**0.0000496**	No

CTR #	PRIORITY POLLUTANTS (µg/L)	MEC or Minimum DL[1]	Governing WQO/WQC	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
111	Dieldrin	0.1	0.00014	**0.0001169**	No
112	alpha-Endosulfan	0.05	0.0087	**0.0000571**	No
113	beta-Endosulfan	0.1	0.0087	**0.0000341**	No
114	Endosulfan Sulfate	0.1	110	**0.0002822**	No
115	Endrin	0.1	0.0023	**0.0000024**	No
116	Endrin Aldehyde	0.1	0.76	Not Available	Cannot determine
117	Heptachlor	0.05	0.00021	**0.0000009**	No
118	Heptachlor Epoxide	0.05	0.0001	**0.000024**	No
119-125	PCBs sum	**0.0001487**	0.00017	**0.0001487**	No
126	Toxaphene	2	0.0002	Not Available	Cannot determine
	Tributylin	0.002	0.01	0.002	No
	Total PAHs	9.5	15.0	0.016197	No

[1] Concentration in bold is the actual detected maximum concentration, otherwise the concentration shown is the maximum detection level.
[2] Maximum Background = Not Available, if there is not monitoring data for this constituent.
[3] RPA Results = Yes, if MEC > WQO/WQC,
= No, if MEC or all effluent concentration non-detect < WQO/WQC,
= Undetermined, if no objective promulgated, and
= Cannot be determined due to lack of data.

1) **Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

2) **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

e. RPA Considerations for Specific Pollutants.

1) **Copper.** The saltwater criteria for copper in the adopted CTR are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protections. Included in the CTR are translator values to convert the dissolved criteria to total criteria. The SIP, Section 1.4.1, and the June 1996 USEPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion,* describe this process and provide guidance on how to establish a site-specific translator. Using the CTR translator, translated criteria of 3.7 µg/L for chronic protection and 5.8 µg/L for acute protection were used to calculate effluent limitations. Self-monitoring data for the period of January 2002 through September 2005 indicate copper was detected 44 out of 46 samples. The detection levels ranged from 1.5 µg/L to 7.6 µg/L (MEC), and the minimum detection limit was 2 µg/L.

This Order establishes effluent limitations for copper because both the 7.6 µg/L MEC and 4.6 µg/L ambient background values exceed the governing WQC of 3.7 µg/L, demonstrating Reasonable Potential.

2) **Cyanide.** Cyanide WQC were promulgated in the NTR for specific waters, which include New York Slough. The NTR established a Criterion Chronic Concentration (CCC) and a Criterion Maximum Concentration (CMC) for the protection of aquatic life of 1 µg/L. Self-monitoring data for the period of January 2002 through September 2005 indicate cyanide was detected, but not quantified, 12 out of 44 samples. The detection levels ranged from 2.1 µg/L to 5.9 µg/L (MEC), and the minimum detection limit was 10 µg/L.

   This Order establishes effluent limitations for cyanide because the 5.9 µg/L MEC exceeds the governing CCC and CMC of 1 µg/L, demonstrating Reasonable Potential.

3) **Chlorodibromomethane.** The CTR contains a numeric water quality criterion of 0.41 µg/L for the protection of human health based on the consumption of water and aquatic organisms. Self-monitoring data for the period of January 2002 through September 2005 indicate chlordibromomethane was detected 3 out of 4 samples. The detection levels ranged from 0.61 µg/L to 1.9 µg/L (MEC), and the minimum detection limit was 1 µg/L.

   This Order establishes effluent limitations for chlorodibromomethane because the 1.9 µg/L MEC exceeds the governing WQC of 0.41 µg/L, demonstrating Reasonable Potential.

4) **Dichlorobromomethane.** The CTR contains a numeric water quality criterion of 0.56 µg/L for the protection of human health based on the consumption of water and aquatic organisms. Self-monitoring data for the period of January 2002 through September 2005 indicate chlordibromomethane was detected 3 out of 4 samples. The detection levels ranged from 0.54 µg/L to 1.9 µg/L (MEC), and the minimum detection limit was 1 µg/L.

   This Order establishes effluent limitations for dichlorobromomethane because the 1.9 µg/L MEC exceeds the governing WQC of 0.56 µg/L, demonstrating Reasonable Potential.

5) **Mercury.** The previous permit includes an effluent limit of 0.68 µg/L for this pollutant. This Order implements the policy and regulations of the SIP and Basin Plan in regard to mercury. Self-monitoring data for the period from January 2002 through September 2005 indicate mercury was detected in 41 samples. The detection levels ranged from 0.00025 µg/L to 0.01295 µg/L (MEC), which is below the WQC of 0.025 µg/L for mercury. This Order does not contain effluent limits, because there is no demonstration of Reasonable Potential, and therefore, no WQBELs are required. This Order is consistent with the anti-degradation provision of 40 CFR §131.12 and with the anti-backsliding requirements of the CWA and Federal regulations.

4. **WQBEL Calculations.** WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedences of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential is indicated in the following table:

Pollutant	Chronic WQO/WQC (µg/L)	Acute WQO/WQC (µg/L)	Human Health WQC (µg/L)	Basis of WQO/WQC
Copper	3.7	5.8	1300	CTR
Cyanide	1	1	700	NTR
Chlorodibromomethane	--	--	0.41	CTR
Dichlorobromomethane	--	--	0.56	CTR

a. Effluent Limit Calculations.

PRIORITY POLLUTANTS	Copper	Cyanide	Chlorodibromomethane	Dichlorobromomethane
Basis and Criteria type	CTR SW	NTR - SW	CTR - HH	CTR - HH
Lowest Dissolved WQO	3.1	1.0	0.41	0.56
CTR Translators	0.83			
no. of samples per month	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	N	N
HH criteria analysis required? (Y/N)	Y	N	Y	Y
Total Applicable Acute WQO	5.78	1	N/A	N/A
Total Applicable Chronic WQO	3.73	1	N/A	N/A
HH criteria	1300	700	0.41	0.56
Background (max conc for Aquatic Life calc)	4.613	0.5		
Background (avg conc for HH calc)	3.539	0.425	0.5	0.5
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	N
ECA acute	5.8	1		
ECA chronic	3.7	1		
ECA HH	1300	700	0.41	0.56
No. of data points <10 or atleast 80% reported non detect?	N	N	Y	Y
avg of data points	3.1			
SD	1.24			
CV calculated	0.4	N/A	N/A	N/A
CV (Selected) - Final	0.4	0.6	0.60	0.60
ECA acute mult99	0.44	0.32		
ECA chronic mult99	0.64	0.53		
LTA acute	2.54	0.32		
LTA chronic	2.4	0.53		
minimum of LTAs	2.4	0.32		
AMEL mult95	1.36	1.55	1.55	1.55
MDEL mult99	2.27	3.11	3.11	3.11
AMEL (aq life)	3.26	0.50		
MDEL(aq life)	5.47	1.00		
MDEL/AMEL Multiplier	1.67	2.01	2.01	2.01
AMEL (human hlth)	1300	700	0.41	0.56
MDEL (human hlth)	2177	1404	0.82	1.12
minimum of AMEL for Aq. life vs HH	3.26	0.5	0.41	0.56
minimum of MDEL for Aq. Life vs HH	5.47	1.0	0.82	1.12
Current limits in permit (daily)	4.9	N/A	N/A	N/A
Final limit - AMEL	3.3	0.5	0.41	0.56
Final limit - MDEL	5.5	1.0	0.82	1.12
Max Effl Conc (MEC), 2000-2004	7.6	6	1.9	1.9

b. Alternative Limit for Cyanide. As described in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay*, dated November 10, 2005, the Regional Water Board is proposing to develop site-specific criteria for cyanide. In this report, the proposed site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. For shallow water dischargers (i.e., USS-Posco Industries), this report also recommends using an attenuation factor of 3.5 in calculating final water quality based

effluent limits. Based on these assumption, and the Dischargers current cyanide data (coefficient of variation of 0.6), final water quality based effluent limits for cyanide will be 18.6 µg/L as a Maximum Daily, and 9.3 µg/L as an Monthly Average. These alternative limits will become effective only if the site-specific objective adopted for cyanide contains the same assumptions in the staff report, dated November 10, 2005.

c. **Comparison to Previous Permit Limitations.** WQBELs in this Order are revised and updated from the limits in the previous permit and their presence in this Order is based on evaluation of the Discharger's data as described in this Fact Sheet (Determining the Need for WQBELs). For mercury, the effluent limitation is discontinued because there is no demonstration of Reasonable Potential, and therefore, no WQBELs are required. For chromium VI, lead, zinc, and nickel, concentration-based effluent limitations are discontinued, but the mass-based effluent limitations are in this Order as in the previous permit. This Order also contains concentration-based effluent limitations for copper, cyanide chlorodibromomethane, and dichlorobromomethane whereas the previous permit does not. This Order's technology-based effluent limitations were calculated and implemented the same as in the previous permit.

5. **Whole Effluent Toxicity (WET).** The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. The whole effluent toxicity limits contained is this Order are necessary to ensure that this objective is protected.

   a. **Whole Effluent Acute Toxicity.** This Order includes effluent limits for whole-effluent acute toxicity that are unchanged from the previous permit, and is based on the Basin Plan (Table 4-2).

   b. **Whole Effluent Chronic Toxicity.** This limit establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). This Order requires the Discharger to conduct a screening phase monitoring requirement and implement toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge. The limitations for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent limitations for chronic toxicity (Table 4-6), U.S. EPA and State Water Board Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

   c. **Dilution Credit.** The Basin Plan prohibits the discharge of wastewater which has characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any non-tidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof. The Basin Plan states that dilution credit may be granted on a discharger-by-discharger and pollutant-by-pollutant basis based on provisions of the SIP. Exceptions will be

considered by the Regional Water Board where a discharger meets the following requirements:

(1) Completion of a source identification study;
(2) An aggressive pretreatment and source control program is in place;
(3) Commitment of resources to fully implement the source control and reduction plan;
(4) A demonstration that the proposed effluent limitation will result in compliance with the water quality objectives (in the receiving waters). Such demonstration shall be based on ambient monitoring at a frequency equal to that typically required for effluent monitoring; and
(5) An evaluation of worst-case conditions (in terms of tidal cycle, currents) through monitoring and /or modeling to demonstrate that water quality objectives will continue to be met.

The Discharger requested an exception to the assigned dilution ratio of D=0 (and thus to shallow water effluent limitations) regarding its chronic toxicity effluent limitation.

In reports dated November 6, 1996, and February 6, 1997, *Toxic Identification Evaluation* (TIE), the Discharger demonstrated that it has an aggressive pretreatment and source control program in place. The Discharger continued source identification studies (TIEs September 20, 1998, December 19, 1998, and September 28, 2000), and in a report dated January 21, 2003, summarized its investigative efforts to identify and control toxicity in its effluent. Based upon these reports, the Regional Water Board finds that the Discharger has taken reasonable steps to reduce toxicity to required levels.

To demonstrate compliance with water quality objectives, the Discharger submitted a CORMIX model (Blair report, dated April 26, 1994) that demonstrated a mixing zone of 250 feet that has a 12.5:1 dilution ratio. To further demonstrate that a mixing zone will not compromise the integrity of the receiving waters and corresponding beneficial uses, the Discharger conducted receiving water studies, according to plans dated November 10, 2000, and July 24, 2003, to assess the toxicity of the Discharger's effluent on the receiving water.

Based upon the information submitted by the Discharger, the Board finds that the Discharger has met the requirements for a dilution credit specified in the Basin Plan and SIP, and finds that an exception to the discharge prohibition is warranted for the shallow water discharge to New York Slough.

The Basin Plan directs that dilution may be allowed for shallow water dischargers only if needed to meet effluent limits. Regional Water Board staff conducted a statistical analysis of the Discharger's chronic toxicity data. The analysis indicated that the Discharger can meet a limit of 8.1 TUc 99% of the time, which is approximately 5:1 dilution. Based upon this statistical analysis and the Discharger's demonstration that the proposed dilution credit will result in compliance with the water quality objectives in the receiving water (*Receiving Water Sampling Plan, Final Report August 12,2004*), the Regional Water Board grants a 5:1 dilution towards the Discharger's chronic toxicity effluent limitations.

D. Final Effluent Limitations

Summary of Final Effluent Limitations
Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Basis
pH	Standard Units			6.5	8.5	Basin Plan
Temperature	°F				93	Thermal Plan and BPJ
Settleable matter	ml/l/hr	0.1	0.2			Basin Plan
TSS	lbs/day	2365	5139			40 CFR § 420
Oil & Grease	lbs/day	1025	2391			40 CFR § 420
Copper	µg/L	3.3	5.5			CTR
Lead	lbs/day	15.5	31.5			40 CFR § 420 and 40 CFR § 433
Zinc	lbs/day	5.6	16.9			40 CFR § 420
Total Chromium	lbs/day	42.8	69.4			40 CFR § 433
Total Nickel	lbs/day	59.6	99.6			40 CFR § 433
Total Silver	lbs/day	6.0	10.8			40 CFR § 433
Naphthalene	lbs/day	--	0.68			40 CFR § 420
Tetrachloroethylene	lbs/day	--	1.03			40 CFR § 420

Summary of Final Effluent Limitations
Discharge Point 002

Parameter	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
pH	Standard Units				6.5	8.5	Basin Plan
Oil and Grease	Mg/L			15			Basin Plan

1. **Intake Water Credit.** As described below, the Discharger meets all the specified conditions in 40 CFR §122.45(g) and Section 1.4.4 of the SIP, and therefore, may receive intake water credit for copper.

   a. **40 CFR §122.45(g).** 40 CFR §122.45(g) allows credit for pollutants in intake water, in some cases where the facility is faced with situations in which limits are difficult or impossible to meet with BAT/BCT technology. Net credits are authorized only up to the extent necessary to meet the applicable limitation or standard, and if the intake water is taken from the same body of water into which the discharge is made.

   In this case, it would be difficult for the Discharger to meet final WQBELs for copper with BAT/BCT technology. This is because copper is not used in any of the Facility's processes, and elevated concentrations appear to be an artifact of source water.

   On the second condition, the discharge point is hydrologically connected to the intake source. Approximately 40% of the Discharger's intake water is from the San Joaquin River (part of the Delta system), and the intake structure is located approximately 1,600 feet upstream of Discharge Point 001. The balance of the Discharger's intake water comes from the Contra Costa Canal that also originates in the Delta approximately 10 miles east of Discharge Point 001. New York Slough, the effluent discharge receiving water, connects with the San Joaquin River just upstream of the confluence between the Sacramento and San Joaquin Rivers (the Delta System). The Contra Costa Canal Water is a part of the Delta system that flows to the San Joaquin River; therefore, it connects hydrologically to the receiving water. Comparisons of the San Joaquin River RMP station data and the Discharger's data, indicates reductions in copper concentrations in the Discharger's effluent discharge to New York Slough.

   Based on these factors, Regional Water Board staff determined that the Discharger meets the conditions specified in 40 CFR §122.45(g) and that the intake water credit for copper in this Order is appropriate.

   b. **Section 1.4.4 of the SIP.** The SIP allows intake water credits provided the Discharger meets the following conditions to the satisfaction of the Regional Water Board:
      1) The observed maximum ambient background concentration and the intake water concentration of the pollutant exceed the most stringent applicable WQO/WQC for that pollutant;
      2) The intake water credits are consistent with any TMDL applicable to the discharge;
      3) The intake water is from the same water body as the receiving water body;
      4) The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and
      5) The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

   Ambient Background. The Sacramento River station, which fits the definition for ambient background in the SIP, is upstream, not within a mixing zone, and does represent water that will mix with the discharge. The RMP station at Sacramento River has been sampled for most of the inorganic and some of the organic toxic pollutants during the period from 2000 to 2005,

and during this period the RMP station measured concentrations of copper in six different samples. The maximum detected concentration measured was 4.61 µg/L, which is above the applicable WQO/WQC of 3.73 µg/L.

The Discharger measured copper in its intake water 9 times during the period 2000 to 2006. Copper was detected in all the samples, and the maximum detected concentration was 4.4 µg/L, which is above the applicable WQO/WQC of 3.73 ug/L.

Further, in March 2006, the Discharger measured dissolved copper in both intakes (San Joaquin River and Contra Costa Canal) and in the effluent discharge, and in seven out of the eight samples obtained, dissolved copper concentrations in the discharge were less than the weighted averages of the intake concentrations. Based on these results, we believe that beneficial uses are protected.

E. Interim Effluent Limitations

1. Feasibility Evaluation

The Discharger submitted an infeasibility to comply report for Discharge Point 001, dated February 23, 2006, for copper, cyanide, chlorodibromomethane, and dichlorobromomethane. Regional Water Board staff used the Discharger's self-monitoring data from January 2002 through September 2005 to confirm the Discharger's assertion of infeasibility.

a. For copper, Regional Water Board staff statistically analyzed the data to compare the mean, 95th percentile, and 99th percentile with the long-term average (LTA), average monthly effluent limit (AMEL), and maximum daily effluent limit (MDEL). If the LTA, AMEL, and MDEL all exceed the mean, 95th percentile, and 99th percentile, it is feasible for the Discharger to comply with WQBELs. Based on this analysis and the comparisons in the following table, the Regional Water Board confirms the Discharger's assertion of infeasibility.

	Mean / LTA	95th / AMEL	99th / MDEL	Feasible to Comply
Copper	2.9 > 2.4	5.3 > 1.4	6.3 > 2.3	No

b. For cyanide, the Discharger's self-monitoring data resulted in 12 detected values out of 44 samples of cyanide. The Regional Water Board finds this small number of detected data precludes any meaningful statistical analysis for the purpose of feasibility determination. However, the maximum effluent concentration (MEC) at 5.9 µg/L during this period exceeds the WQBELs. The Regional Water Board, therefore, considers the occurrence of the MEC value above the WQBELs to confirm the Discharger's assertion of infeasibility.

c. For chlorodibromomethane and dichlorobromomethane, the Discharger sampled four times during the years 2002 through 2005. The Regional Water Board finds this small data set precludes any meaningful statistical analysis. The self-monitoring data for chlorodibromomethane resulted in three detected values out of only four samples, and ranged from 0.6 µg/L to the MEC of 1.9 µg/L, which exceeds the WQBELs. For dichlorobromomethane, self-monitoring data resulted in three detected values out of four

samples that ranged from 0.5 µg/L to the MEC of 1.9 µg/L, which exceeds the WQBELs. The Regional Water Board, therefore, considers the occurrences of the MEC values above the WQBELs to confirm the Discharger's assertion of infeasibility.

The following table summarizes the calculated WQBELs, and the feasibility to comply analysis for all the pollutants. The WQBELs calculation is attached as Attachment 3 of this Fact Sheet.

Pollutant	MDEL µg/L	AMEL µg/L	Feasible to Comply?
Copper	5.5	3.3	**No**
Cyanide	0.5	1.0	**No**
Chlorodibromomethane	0.4	0.8	**No**
Dichlorobromomethane	0.6	1.1	**No**

2. Determination of Interim Effluent Limitations

For copper, cyanide, chlorodibromomethane, and dichlorobromomethane, the Discharger has demonstrated, and the Regional Water Board has verified that immediate compliance with the final effluent limitations calculated according to the SIP is infeasible. The SIP requires the interim numeric effluent limitations for the pollutants be based on either interim performance-based limitations (IPBLs) or previous permit limitations, whichever is more stringent. Historically, IPBLs have been referenced to the 99.87th percentile value of recent effluent data. In determining what constitutes "recent plant performance", best professional judgment (BPJ) was used. Effluent monitoring data collected from 2002 through 2005 are considered representative of recent plant performance. These data specifically account for flow variation due to wet and dry years.

a. For copper, the previous permit granted a five year compliance schedule. The maximum time schedule allowed by the CTR and SIP is five years. Therefore the Discharger cannot be granted another compliance schedule.

b. For cyanide, the Regional Water Board granted, in the previous permit, a compliance schedule pursuant to the 2000 SIP §2.2.2, Interim Requirements for Providing Data (note 2005 SIP amendment deleted this section as it is not applicable to permits effective after May 18, 2003). This was to allow collection of ambient data, because the Regional Monitoring Program data were not complete primarily due to inadequate detection limits. The Discharger, thru BACWA and WSPA, helped fund an effort to collect these data as part of the collaborative receiving water monitoring for other CTR pollutants. The Regional Water Board has received these data, which form the basis for current permits. However, upon further consideration, the SIP §2.2.2 compliance schedule was granted in error, because cyanide is an NTR criterion and not a CTR criterion, and the SIP compliance schedule provisions apply to "...CTR criterion and/or effluent limitations." Thus, it is more appropriate to apply the Basin Plan's compliance schedule provision, which was the implementation tool for NTR criteria prior to the SIP superceding the provisions in the Basin Plan related to calculation of water quality based effluent limitations. As such, for cyanide, due to the adoption of the SIP, the Water Board has newly interpreted these cyanide criteria. The effective date of this new

interpretation is the effective date of the SIP (April 28, 2010) for implementation of these numeric Basin Plan objectives.

The previous permit did not include an effluent limit for cyanide. As previously discussed in section E.1 of this Fact Sheet, there were insufficient cyanide effluent data (i.e. detected values) during the years 2002 through 2005; therefore, Regional Water Board staff used cyanide effluent monitoring data collected from 2003 through 2006 as being representative of recent plant performance to develop statistically valid performance-based interim limits. The statistical analysis indicates that the 99.87th percentile of the recent cyanide effluent data is 22.0 µg/L (based on 20 detected values out of 42 samples), which is established in this Order as the interim limitation, expressed as a daily maximum limitation.

c. For chlorodibromomethane and dichlorobromomethane, as previously discussed in section E.1 of this Fact Sheet, there were insufficient effluent data (i.e., number of samples) to develop statistically valid performance-based interim limits. The previous permit did not contain limitations for these constituents; therefore, the interim effluent concentration limitations are based on the minimum levels contained in the SIP. This Order established interim limitations, expressed as daily maximum limitations for chlorodibromomethane, and dichlorobromomethane of 2.0 µg/L each.

As a prerequisite to being granted the interim limits described above and the compliance schedule described in Provision VII.B.4 below, the Discharger must implement cyanide, chlorodibromomethane, and dichlorobromomethane source control strategies, as required by Provision VI.C.3.a of this Order.

F. Land Discharge Specifications – N/A

G. Reclamation Specifications – N/A

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. **Receiving Water Limitations V.A.1 through V.A.3 (conditions to be avoided).** These limitations are in the previous permit and are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan.

2. **Receiving Water Limitations V.A.4 (compliance with State Law).** This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

B. Groundwater – N/A

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger are to:

1) Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board,

2) Facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge,
3) Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and to
4) Prepare water and wastewater quality inventories.

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

The MRP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board's policies. The MRP also contains a sampling program specific for this Facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

A. Influent Monitoring. The MRP includes monitoring at intake points I-001 and I-002 for flow and copper concentrations should the Discharger want to receive intake water credit for copper as an alternative to complying with the concentration-based effluent limitations specified in IV.A.1.a in accordance with the requirements specified in IV.A.3 of this Order.

B. Effluent Monitoring. The MRP includes monitoring at discharge points M-001 and M-002. The MRP also includes monitoring at M-001 for non-conventional and toxic pollutants. This Order continues to require daily monitoring of flow, pH, and temperature to demonstrate compliance with effluent limitations. This Order also requires monthly monitoring for TSS, Settleable matter, Oil & Grease, copper, cyanide, lead, zinc, Total chromium, Total nickel, Total silver, naphthalene, tetrachloroethylene to demonstrate compliance with effluent limitations. The monitoring frequency for chlorodibromomethane and dichlorobromomethane has been increased from annually to twice per year to demonstrate compliance with effluent limitations. The monitoring frequency for mercury and selenium has been changed from "monthly" to "quarterly" because these constituents were not detected in concentrations above water quality objectives, but are identified in the 303d List as pollutants impairing the Sacramento-San Joaquin Delta. This Order requires monthly monitoring of all other priority pollutant metals, and annual monitoring for the remaining organic priority pollutants to determine Reasonable Potential including 2,3,7,8-TCDD congeners, tributyltin, and PAHs since these pollutants have sparse data with either limited or no detected values in the effluent during the period 2001 through 2005.

C. Whole Effluent Toxicity Testing Requirements. The Basin Plan adopted an Effluent Toxicity Characterization Program (ETCP), with the goal of developing and implementing

toxicity limits for each discharger based on actual characteristics of both receiving waters and waste streams. Dischargers were required, including this Discharger, to monitor their effluent using critical life stage toxicity tests to generate information on toxicity test species sensitivity and effluent variability to allow development of appropriate chronic toxicity effluent limitations. In 1988 and 1991, selected dischargers conducted two rounds of effluent characterization. A third round was completed in 1995, and the Regional Water Board is evaluating the need for an additional round. Regional Water Board guidelines for conducting toxicity tests and analyzing results were published in 1988 and last updated in 1991. The Regional Water Board implements water quality objectives for toxicity through the ETCP.

Characteristics, and thus toxicity, of the waste stream may have changed. This screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for compliance monitoring. This Order requires that the Discharger continue its effluent toxicity monitoring efforts as part of the compliance requirements. This requirement is based on the Basin Plan and BPJ.

D. Receiving Water Monitoring

1. **Surface Water.** The MRP includes monitoring at monitoring location R-001, R-002, R-003, and R-004 for conventional pollutants, and are unchanged from the previous permit.

2. **Groundwater – N/A**

E. Other Monitoring Requirements – N/A

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions. (Provision A). Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachments D and H of this Order.

B. Special Provisions (Provision C).

1. **Reopener Provisions.** These provisions are based on 40 CFR 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

2. **Special Studies and Additional Monitoring Requirements**

   a. **Effluent Characterization for Selected Constituents.** This Order does not include effluent limitations for the selected constituents addressed in the August 6, 2001 Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001 Letter and as specified in the MRP of this Order. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures, if the increases result in reasonable potential

to cause or contribute to an excursion above the applicable WQO/WQC. This provision is based on the Basin Plan and the SIP.

b. **Ambient Background Monitoring.** This provision, which requires the Discharger to continue to conduct receiving water monitoring is based on the previous Order and the Basin Plan.

c. **Mass offset.** This option is provided to encourage the Discharger to implement aggressive reduction of mass loads to New York Slough.

3. **Best Management Practices and Pollution Prevention.**

a. **Pollutant Minimization.** This provision is based on the Basin Plan, page 4-25 – 4-28, and the SIP, Section 2.1, Compliance Schedules.

b. **Storm Water Pollution Prevention.** This provision, is based on and consistent with Basin Plan objectives, statewide storm water requirements for industrial facilities, and applicable USEPA regulations.

4. **Compliance Schedules**

Compliance schedules are established based on Section 2.1 of the SIP for limits derived from CTR WQC or based on the Basin Plan for limits derived from the Basin Plan WQOs. If an existing Discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and Basin Plan require that the following information be submitted to the Regional Water Board to support a finding of infeasibility:

i. documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
ii. documentation of source control and/or pollution minimization efforts currently under way or completed;
iii. a proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and
iv. a demonstration that the proposed schedule is as short as practicable.

Interim effluent limitations were derived for cyanide, chlorodibromomethane, and dichlorobromomethane for which the Discharger has shown infeasibility of complying with the respective final limitations and has demonstrated that compliance schedules are justified based on the Discharger's source control and pollution minimization efforts in the past, and continued efforts in the present and future

This Order establishes compliance schedules until April 28, 2010 for cyanide, and until May 18, 2010, for chlorodibromomethane, and dichlorobromomethane. This Order establishes compliance schedules for these pollutants that extend beyond 1 year. Pursuant to the SIP, and 40 CFR 122.47, the Regional Water Board shall establish interim numeric limitations and interim requirements to control the pollutants. This Order establishes interim limits for these pollutants based on the previous permit limits or existing plant

performance, whichever is more stringent. The Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met. The cyanide interim limitation shall remain in force until April 28, 2010, or until the Regional Water Board amends the limitations based on additional data or site-specific objectives (SSOs).

5. **Construction, Operation, and Maintenance Specifications – N/A**

6. **Special Provisions for Municipal Facilities (POTWs Only) – N/A**

7. **Other Special Provisions**

Contingency Plan. This provision is based on the requirements stipulated in Regional Water Board Resolution No. 74-10.

VIII. PUBLIC PARTICIPATION

The San Francisco Bay Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for USS-POSCO Industries. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

-The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the Contra Costa Times on March 10, 2006.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order, Attention Gayleen Perreira.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on April 12, 2006.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	May 10, 2006
Time:	9:00 a.m.
Location:	Elihu Harris State Office Building 1515 Clay Street Oakland, CA

1st floor Auditorium
Contact: Ms. Gayleen Perreira, Phone: (510)622-2407; email: gperreira@waterboards.ca.gov

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is www.waterboards.ca.gov /sanfranciscobay where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (510)622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Ms. Gayleen Perreira at (510) 622-2407, or by e-mail at gperreira@waterboards.ca.gov.

ATTACHMENT 1 – CALCULATIONS FOR PRODUCTION BASED EFFLUENT LIMITATIONS

ATTACHMENT 1

CALCULATIONS FOR PRODUCTION-BASED BPT, BCT, AND BAT EFFLUENT LIMITATIONS FOR USS POSCO

References:

1) 40 CFR Part 420 Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing (Acid pickling, Cold forming, Alkaline cleaning, and Hot Coating Subcategories)
2) 40 CFR Part 433 Metal Finishing Point Source Category
3) U.S. EPA NPDES Permit Writers' Manual
4) NPDES Application for Permit Reissuance (May 2005)
5) Steel Finishing average daily production rates, based on years 2000 – 2005, provided by the facility.

Production-Based Effluent Limitations

STEP 1: Determine the production rate effluent limitations:

Category	National Effluent Limitations Guidelines (ELGs)	'A' ELGs Daily Maximum	'B' ELGs Monthly Average	'C' Production Rate (lbs/day)	'A' times 'C' Daily Maximum (lbs/day)	'B' times 'C' Monthly Average (lbs/day)
1:	IRON AND STEEL MANUFACTURING POINT SOURCE CATEGORY					
	Subpart I, Acid Pickling:					
A	Sulfuric Acid Pickling					
	Strip, sheet and plate (lbs/1000lb)			2314000		
	TSS	0.0526	0.0225		121.72	52.07
	Lead	0.000338	0.000113		0.782	0.261
	Zinc	0.000451	0.000150		1.044	0.347
B	Hydrochloric Acid Pickling					
	Strip, sheet and plate (lbs/1000lb)			10628000		
	TSS	0.0818	0.0350		869.37	371.98
	Lead	0.000526	0.000175		5.59	1.86
	Zinc	0.000701	0.000234		7.45	2.49
C	Fume Scrubbers (1 unit) (Kg/day each)			-----		
	TSS	5.72	2.45		12.6	5.40
	Lead	0.0368	0.0123		0.081	0.027
	Zinc	0.0491	0.0164		0.108	0.036
D	Acid Regeneration (absorber vent scrubber) (Kg/day)			-----		
	TSS	38.2	16.3		84.216	35.935
	Lead	0.245	0.0819		0.54	0.181
	Zinc	0.327	0.109		0.721	0.240
	Subpart J, Cold Forming					
E	Recirculation: Multiple Stands (lbs/1000lb)			10628000		
	TSS	0.00626	0.00313		66.53	33.27
	O&G	0.00261	0.00104		27.74	11.05
	Lead	0.0000469	0.0000156		0.498	0.166
	Zinc	0.0000313	0.0000104		0.333	0.111
	Naphthalene	0.0000104	NA		0.111	
	Tetrachloroethylene	0.0000156	NA		0.166	
F	Combination (lbs/1000lb)			3144000		
	TSS	0.0751	0.0376		236.11	118.21
	O&G	0.0313	0.0125		98.41	39.3
	Lead	0.000563	0.000188		1.77	0.591
	Zinc	0.000376	0.000125		1.18	0.393
	Naphthalene	0.000125	NA		0.393	
	Tetrachloroethylene	0.000188	NA		0.591	
G	Direct application: Single Stand (lbs/1000lb)			4770000		
	TSS	0.0225	0.0113		107.325	53.90
	O&G	0.00939	0.00376		44.79	17.94
	Lead	0.000169	0.0000563		0.806	0.269
	Zinc	0.000113	0.0000376		0.539	0.179

Step 1 Continued:

Category	ELGs	'A'	'B'	'C'	'A' times 'C'	'B' times 'C'
	Naphthalene	0.0000376	NA		0.179	
	Tetrachloroethylene	0.0000563	NA		0.269	
	Subpart K, Alkaline Cleaning			14678000		
H	Continuous (lbs/1000lb)					
	TSS	0.102	0.0438		1497.16	642.90
	O&G	0.0438	0.0146		642.9	214.30
	Subpart L, Hot Coating			3670000		
I	Galvanizing (lbs/1000lb)					
	Strip, sheet, and misc. products					
	TSS	0.175	0.0751		642.25	275.62
	O&G	0.0751	0.0250		275.62	91.75
	Lead	0.00113	0.000376		4.15	1.38
	Zinc	0.00150	0.000500		5.51	1.84
2:	METAL FINISHING POINT SOURCE CATEGORY					
	Subpart A, Metal Finishing					
	Electroplating (mg/L)			3 MGD		
A	TSS	60	31		1502.1	776.09
	O&G	52	26		1301.82	650.91
	Lead (Total)	0.69	0.43		17.27	10.77
	Chromium (Total)	2.77	1.71		69.35	42.81
	Nickel (Total)	3.98	2.38		99.64	59.58
	Silver (Total)	0.43	0.24		10.77	6.01

STEP 2: Determine the Mass Limitations for each pollutant of concern

Category	TSS Mass Limitations	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
1:	Subpart I, Acid Pickling:		
A	Sulfuric Acid Pickling, Strip, sheet and plate	121.72	52.07
B	Hydrochloric Acid Pickling, Strip, sheet and plate	869.37	371.98
C	Fume Scrubbers	12.6	5.40
D	Acid Regeneration (absorber vent scrubber)	84.216	35.935
	Subpart J, Cold Forming		
E	Recirculation: Multiple Stands	66.53	33.27
F	Combination (lbs/1000lb)	236.11	118.21
G	Direct application: Single Stand	107.325	53.90
H	Subpart K, Alkaline Cleaning, Continuous	1497.16	642.90
I	Subpart L, Hot Coating, Galvanizing, Strip, sheet, and misc. products	642.25	275.62
2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	1502.1	776.09
	Total Mass Limitation (lbs/day)	**5139.38**	**2365.38**
	Total Mass Limitation (kg/day)	**2331.22**	**1072.93**

Category	O&G Mass Limitations	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
1:	Subpart J, Cold Forming		
E	Recirculation: Multiple Stands	27.74	11.05
F	Combination (lbs/1000lb)	98.41	39.3
G	Direct application: Single Stand (lbs/1000lb)	44.79	17.94
H	Subpart K, Alkaline Cleaning, Continuous	642.9	214.3
I	Subpart L, Hot Coating, Galvanizing, Strip, sheet, and misc. products	275.62	91.75
2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	1301.82	650.91
	Total Mass Limitation (lbs/day)	**2391.28**	**1025.25**
	Total Mass Limitation (kg/day)	**1084.69**	**465.05**

Category	Lead (Pb) Mass Limitations	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
1:	Subpart I, Acid Pickling:		
A	Sulfuric Acid Pickling, Strip, sheet and plate	0.782	0.261
B	Hydrochloric Acid Pickling, Strip, sheet and plate	5.59	1.86
C	Fume Scrubbers	0.081	0.027
D	Acid Regeneration (absorber vent scrubber)	0.54	0.181
	Subpart J, Cold Forming		
E	Recirculation: Multiple Stands	0.498	0.166
F	Combination	1.77	0.591
G	Direct application: Single Stand	0.806	0.179
I	Subpart L, Hot Coating, Galvanizing, Strip, sheet, and misc. products	4.15	1.38

2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	17.27	10.77
	Total Mass Limitation (lbs/day)	**31.49**	**15.51**
	Total Mass Limitation (kg/day)	**14.28**	**7.03**

Category	Mass Limitations Zinc	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
1:	Subpart I, Acid Pickling:		
A	Sulfuric Acid Pickling, Strip, sheet and plate	1.044	0.347
B	Hydrochloric Acid Pickling, Strip, sheet and plate	7.45	2.49
C	Fume Scrubbers	0.108	0.036
D	Acid Regeneration (1 unit) (absorber vent scrubber)	0.721	0.240
	Subpart J, Cold Forming		
E	Recirculation: Multiple Stands	0.333	0.111
F	Combination	1.18	0.393
G	Direct application: Single Stand	0.539	0.179
I	Subpart L, Hot Coating, Galvanizing, Strip, sheet, and misc. products	5.51	1.84
	Total Mass Limitation (lbs/day)	**16.89**	**5.64**
	Total Mass Limitation (kg/day)	**7.66**	**2.56**

Category	Mass Limitations Total Chromium	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	69.35	42.81
	Total Mass Limitation (lbs/day)	**69.35**	**42.81**
	Total Mass Limitation (kg/day)	**31.46**	**19.42**

Category	Mass Limitations Total Nickel	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	99.64	59.58
	Total Mass Limitation (lbs/day)	**99.64**	**59.58**
	Total Mass Limitation (kg/day)	**45.2**	**27.03**

Category	Mass Limitations Total Silver	Daily Maximum (lbs/day)	Monthly Average (lbs/day)
2:	METAL FINISHING POINT SOURCE CATEGORY		
A	Subpart A, Metal Finishing, Electroplating	10.77	6.01
	Total Mass Limitation (lbs/day)	**10.77**	**6.01**
	Total Mass Limitation (kg/day)	**4.89**	**2.73**

Category	Mass Limitations Naphthalene	Daily Maximum (lbs/day)
	Subpart J, Cold Forming	
E	Recirculation: Multiple Stands	0.111
F	Combination	0.393
G	Direct application: Single Stand	0.179
	Total Mass Limitation (lbs/day)	**0.683**
	Total Mass Limitation (kg/day)	**0.31**

Category	Mass Limitations Tetrachloroethylene	Daily Maximum (lbs/day)
	Subpart J, Cold Forming	
E	Recirculation: Multiple Stands	0.166
F	Combination	0.591
G	Direct application: Single Stand	0.269
	Total Mass Limitation (lbs/day)	**1.026**
	Total Mass Limitation (kg/day)	**0.465**

ATTACHMENT 2 – RPA RESULTS FOR PRIORITY POLLUTANTS

USS-POSCO
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3				Step 4	Step 2	Step 3	Step 5			Step 6	Stope 7 & 8	Final Result	
	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Concentration from the effluent (MEC) (MEC= deteted max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
1	Antimony	14	Y	N		1.9		1.9	MEC<C, go to Step 5	Y	N		0.337		B<C, Step 7		No	MEC<C & B<C
2	Arsenic [b]	36	Y	N		16		16	MEC<C, go to Step 5	Y	N		2.42		B<C, Step 7		No	MEC<C & B<C
3	Beryllium	No Criteria	Y	N		0.17	No Criteria	No Criteria	No Criteria	Y	N		0.126		No Criteria	No Criteria	Uo	No Criteria
4	Cadmium [b]	1.82	Y	N		0.44		0.44	MEC<C, go to Step 5	Y	N		0.04		B<C, Step 7		No	MEC<C & B<C
5a	Chromium (III or total)	150.92	Y	N		130		130	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
5b	Chromium (VI) [b]	11.43	Y	N		4.3		4.3	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
6	Copper	3.73	Y	N		7.6		7.6	MEC>=C, Effluent Limits Required	Y	N		4.613		B>C, Effluent Limit Requir		Yes	MEC>C
7	Lead [b]	1.95	Y	N		0.62		0.62	MEC<C, go to Step 5	Y	N		1.1276		B<C, Step 7		No	MEC<C & B<C
8	Mercury (303d listed) [b]	0.025	Y	N		0.01295		0.01295	MEC<C, go to Step 5	Y	N		0.0106		B<C, Step 7		No	MEC<C & B<C
9	Nickel [b]	8.28	Y	N		7.7		7.7	MEC<C, go to Step 5	Y	N		6.5		B<C, Step 7		No	MEC<C & B<C
10	Selenium (303d listed) [b]	5	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	Y	N		0.133		B<C, Step 7		No	MEC<C & B<C
11	Silver [b]	2.09	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	N		0.01		B<C, Step 7		No	MEC<C & B<C
12	Thallium	1.7	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
13	Zinc [b]	85.62	Y	N		63		63	MEC<C, go to Step 5	Y	N		7.022		B<C, Step 7		No	MEC<C & B<C
14	Cyanide [b]	1	Y	N		5.9		5.9	MEC>=C, Effluent Limits Required	Y	N		0.5		B<C, Step 7		Yes	MEC>C
15	Asbestos	No Criteria	Y	Y	0.2		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
	TCDD TEQ (303d listed)	0.000000013	Y	Y	6.37E-07		All ND, MinDL>C, Go to Step 5			Y	N		4.8E-08		B>C, Effluent Limit Require		No	All ND; B>C
17	Acrolein	320	Y	Y	20		All ND, MDL<C, MEC=MDL	20	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
18	Acrylonitrile	0.059	Y	Y	20		All ND, MinDL>C, Go to Step 5			Y	Y	0.02		N	No detected value of B, Step		No	UD; effluent data and B are ND
19	Benzene	1.2	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
20	Bromoform	4.3	Y	N		0.15		0.15	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
21	Carbon Tetrachloride	0.25	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	N		0.06		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
22	Chlorobenzene	680	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
23	Chlorodibromomethane	0.41	Y	N		1.90		1.90	MEC>=C, Effluent Limits Required	Y	Y	0.50		Y	No detected value of B, St		Yes	MEC>C
24	Chloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	2		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
26	Chloroform	No Criteria	Y	N		3.5	No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
27	Dichlorobromomethane	0.56	Y	N		1.9		1.9	MEC>=C, Effluent Limits Required	Y	Y	0.5		N	No detected value of B, St		Yes	MEC>C
28	1,1-Dichloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
29	1,2-Dichloroethane	0.38	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	N		0.04		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
30	1,1-Dichloroethylene	0.057	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	Y	0.5		Y	No detected value of B, Step		No	UD; effluent data and B are ND
31	1,2-Dichloropropane	0.52	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	Y	0.5		N	No detected value of B, Step		No	UD; effluent data and B are ND
32	1,3-Dichloropropylene	10	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
33	Ethylbenzene	3100	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
34	Methyl Bromide	48	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
35	Methyl Chloride	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
36	Methylene Chloride	4.7	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
37	1,1,2,2-Tetrachloroethane	0.17	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	Y	0.5		Y	No detected value of B, Step		No	UD; effluent data and B are ND
38	Tetrachloroethylene	0.8	Y	Y	0.65		All ND, MDL<C, MEC=MDL	0.65	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
39	Toluene	6800	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
40	1,2-Trans-Dichloroethyle	700	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
41	1,1,1-Trichloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
42	1,1,2-Trichloroethane	0.6	Y	Y	1		All ND, MinDL>C, Go to Step 5			Y	Y	0.5		N	No detected value of B, Step		No	UD; effluent data and B are ND
43	Trichloroethylene	2.7	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
44	Vinyl Chloride	2	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
45	2-Chlorophenol	120	Y	Y	0.94		All ND, MDL<C, MEC=MDL	0.94	MEC<C, go to Step 5	Y	Y	1.2		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
46	2,4-Dichlorophenol	93	Y	Y	0.94		All ND, MDL<C, MEC=MDL	0.94	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
47	2,4-Dimethylphenol	540	Y	Y	0.94		All ND, MDL<C, MEC=MDL	0.94	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
48	2-Methyl- 4,6-Dinitrophe	13.4	Y	N		0.87		0.87	MEC<C, go to Step 5	Y	Y	1.2		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
49	2,4-Dinitrophenol	70	Y	N		3.5		3.5	MEC<C, go to Step 5	Y	Y	0.7		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
50	2-Nitrophenol	No Criteria	Y	N		3	No Criteria	No Criteria	No Criteria	Y	Y	1.3		N	No Criteria	No Criteria	Uo	No Criteria
51	4-Nitrophenol	No Criteria	Y	N		5.7	No Criteria	No Criteria	No Criteria	Y	Y	1.6		N	No Criteria	No Criteria	Uo	No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.94		No Criteria	No Criteria	No Criteria	Y	Y	1.1		N	No Criteria	No Criteria	Uo	No Criteria
53	Pentachlorophenol	0.28	Y	Y	9.5		All ND, MinDL>C, Go to Step 5			Y	Y	1		Y	No detected value of B, Step		No	UD; effluent data and B are ND
54	Phenol	21000	Y	N		49		49	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
55	2,4,6-Trichlorophenol	2.1	Y	Y	1.9		All ND, MDL<C, MEC=MDL	1.9	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
56	Acenaphthene	1200	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	Y	N		0.00024		B<C, Step 7		No	MEC<C & B<C
57	Acenaphthylene	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	Y	N		0.000059		No Criteria	No Criteria	Uo	No Criteria
58	Anthracene	9600	Y	Y	0.04		All ND, MDL<C, MEC=MDL	0.04	MEC<C, go to Step 5	Y	N		0.000197		B<C, Step 7		No	MEC<C & B<C
59	Benzidine	0.00012	Y	Y	100		All ND, MinDL>C, Go to Step 5			Y	Y	0.0015		Y	No detected value of B, Step		No	UD; effluent data and B are ND
60	Benzo(a)Anthracene	0.0044	Y	Y	0.08		All ND, MinDL>C, Go to Step 5			Y	N		0.0011		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
61	Benzo(a)Pyrene	0.0044	Y	Y	0.05		All ND, MinDL>C, Go to Step 5			Y	N		0.000822		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
62	Benzo(b)Fluoranthene	0.0044	Y	Y	0.02		All ND, MinDL>C, Go to Step 5			Y	N		0.0012		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.05		No Criteria	No Criteria	No Criteria	Y	N		0.001246		No Criteria	No Criteria	Uo	No Criteria
64	Benzo(k)Fluoranthene	0.0044	Y	Y	0.02		All ND, MinDL>C, Go to Step 5			Y	N		0.000546		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
65	Bis(2-Chloroethoxy)Meth	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
66	Bis(2-Chloroethyl)Ether	0.031	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	Y	0.3		Y	No detected value of B, Step		No	UD; effluent data and B are ND
67	Bis(2-Chloroisopropyl)Eth	1400	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
68	Bis(2-Ethylhexyl)Phthalat	1.8	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	N		0.68		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
69	4-Bromophenyl Phenyl E	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria	Y	Y	0.23		N	No Criteria	No Criteria	Uo	No Criteria
70	Butylbenzyl Phthalate	3000	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	Y	N		0.0065		B<C, Step 7		No	MEC<C & B<C
71	2-Chloronaphthalene	1700	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	Y	Y	0.31		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
72	4-Chlorophenyl Phenyl E	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria	Y	Y	0.31		N	No Criteria	No Criteria	Uo	No Criteria
73	Chrysene	0.0044	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	N		0.000997		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
74	Dibenzo(a,h)Anthracene	0.0044	Y	Y	0.2		All ND, MinDL>C, Go to Step 5			Y	N		0.000033		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
75	1,2-Dichlorobenzene	2700	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
76	1,3-Dichlorobenzene	400	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
77	1,4-Dichlorobenzene	400	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
78	3,3 Dichlorobenzidine	0.04	Y	Y	50		All ND, MinDL>C, Go to Step 5			Y	Y	0.001		N	No detected value of B, Step		No	UD; effluent data and B are ND
79	Diethyl Phthalate	23000	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	Y	Y	0.21		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
80	Dimethyl Phthalate	313000	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	Y	Y	0.21		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
81	Di-n-Butyl Phthalate	2700	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5	Y	N		1.72		B<C, Step 7		No	MEC<C & B<C
82	2,4-Dinitrotoluene	0.11	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	Y	0.27		Y	No detected value of B, Step		No	UD; effluent data and B are ND
83	2,6-Dinitrotoluene	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria	Y	Y	0.29		N	No Criteria	No Criteria	Uo	No Criteria
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria	Y	Y	0.38		N	No Criteria	No Criteria	Uo	No Criteria
85	1,2-Diphenylhydrazine	0.04	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	N		0.0087		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
86	Fluoranthene	300	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	Y	N		0.0028		B<C, Step 7		No	MEC<C & B<C
87	Fluorene	1300	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	N		0.000352		B<C, Step 7		No	MEC<C & B<C
88	Hexachlorobenzene	0.00075	Y	Y	10		All ND, MinDL>C, Go to Step 5			Y	N		0.000065		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C

USS-POSCO
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3				Concentration from the effluent (MEC)	Step 4		Step 2	Step 3	Step 5			Step 6	Steps 7 & 8	Final Result	
	Constituent name	C (ug/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	(MEC= deteted max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5		B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
89	Hexachlorobutadiene	0.44	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.3		N	No detected value of B, Step		No	UD; effluent data and B are ND
90	Hexachlorocyclopentadie	240	Y	Y	50		All ND, MDL<C, MEC=MDL	50	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
91	Hexachloroethane	1.9	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.2		N	No detected value of B, Step		No	UD; effluent data and B are ND
92	Indeno(1,2,3-cd)Pyrene	0.0044	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.00106		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
93	Isophorone	8.4	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.3		N	No detected value of B, Step		No	UD; effluent data and B are ND
94	Naphthalene	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria		Y	N		0.00369		No Criteria	No Criteria	Uo	No Criteria
95	Nitrobenzene	17	Y	Y	10		All ND, MDL<C, MEC=MDL	10	MEC<C, go to Step 5		Y	Y	0.29		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
96	N-Nitrosodimethylamine	0.00069	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.3		Y	No detected value of B, Step		No	UD; effluent data and B are ND
97	N-Nitrosodi-n-Propylamin	0.005	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.001		N	No detected value of B, Step		No	UD; effluent data and B are ND
98	N-Nitrosodiphenylamine	5	Y	Y	10		All ND, MinDL>C, Go to Step 5				Y	Y	0.001		N	No detected value of B, Step		No	UD; effluent data and B are ND
99	Phenanthrene	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria		Y	N		0.00137		No Criteria	No Criteria	Uo	No Criteria
100	Pyrene	960	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5		Y	N		0.00261		B<C, Step 7		No	MEC<C & B<C
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	10		No Criteria	No Criteria	No Criteria		Y	Y	0.3		N	No Criteria	No Criteria	Uo	No Criteria
102	Aldrin	0.00013	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	Y	6E-05		N	No detected value of B, Step		No	UD; effluent data and B are ND
103	alpha-BHC	0.0039	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.0000404		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
104	beta-BHC	0.014	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.00005		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
105	gamma-BHC	0.019	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.0001047		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
106	delta-BHC	No Criteria	Y	Y	0.05		No Criteria	No Criteria	No Criteria		Y	Y	7.2E-07		N	No Criteria	No Criteria	Uo	No Criteria
107	Chlordane (303d listed)	0.00057	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.0001428		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.0005463		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
109	4,4'-DDE (linked to DDT)	0.00059	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.000061		B<C, Step 7		No	All ND; B>C
110	4,4'-DDD	0.00083	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.0000496		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
111	Dieldrin (303d listed)	0.00014	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.0001169		B<C, Step 7		No	All ND; B>C
112	alpha-Endosulfan	0.0087	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.0000571		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
113	beta-Endolsulfan	0.0087	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.0000341		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
114	Endosulfan Sulfate	110	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5		Y	N		0.0002822		B<C, Step 7		No	MEC<C & B<C
115	Endrin	0.0023	Y	Y	0.1		All ND, MinDL>C, Go to Step 5				Y	N		0.0000024		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
116	Endrin Aldehyde	0.76	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5		N					No detected value of B, Step		No	Ud;MEC<C & B is ND
117	Heptachlor	0.00021	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.0000009		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
118	Heptachlor Epoxide	0.0001	Y	Y	0.05		All ND, MinDL>C, Go to Step 5				Y	N		0.000024		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
119-125	PCBs sum (2)	0.00017	Y	N		0.0001487		0.0001487	MEC<C, go to Step 5		Y	N		0.0001487		B<C, Step 7		No	MEC<C & B<C
126	Toxaphene	0.0002	Y	Y	2		All ND, MinDL>C, Go to Step 5				N					No detected value of B, Step		No	MDL>C & No B
	Tributylin	0.01	Y	Y	0.002		All ND, MDL<C, MEC=MDL	0.002	MEC<C, go to Step 5		Y	Y	0.002		N	No detected value of B, Step		No	Ud;MEC<C & B is ND
	Total PAHs	15	Y		9.5		All ND, MDL<C, MEC=MDL	9.5	MEC<C, go to Step 5		Y	N		0.016197		B<C, Step 7		No	MEC<C & B<C

a. The most stringent of salt and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.

c. Acronyms in the "Final Result" column: Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria
IM: Interim monitoring is required

ATTACHMENT 3 – CALCULATIONS FOR FINAL WQBELs

USS-POSCO Industries
WQBEL Calculation

PRIORITY POLLUTANTS	Copper	Cyanide	Chlorodibromo-methane	Dichlorobromo-methane
Units	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Basis and Criteria type	CTR SW	CTR SW	CTR HH	CTR HH
Lowest Disolved WQO	3.10	1.00	4.10E-01	5.60E-01
Translators	0.8			
Dilution Factor (D) (if applicable)	0	0	0	0
No. of samples per month	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	N	N
HH criteria analysis required? (Y/N)	Y	Y	Y	Y
Applicable Acute Total WQO	5.78	1.0	NA	NA
Applicable Chronic Total WQO	3.73	1.0	NA	NA
HH criteria	1300.0	700.0	0.41	0.56
Background (max conc for Aq Life calc)	4.613	0.5		
Background (avg conc for HH calc)	3.539	0.425	0.5	0.5
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	N
ECA acute	5.8	1		
ECA chronic	3.7	1		
ECA HH	1300	700	0.41	0.56
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	Y	Y
Avg of effluent data points	3.100			
Std Dev of effluent data points	1.240			
CV calculated	0.40	N/A	N/A	N/A
CV (Selected) - Final	0.40	0.6	0.6	0.6
ECA acute mult99	0.44	0.32		
ECA chronic mult99	0.64	0.53		
LTA acute	2.54	0.32		
LTA chronic	2.40	0.53		
minimum of LTAs	2.40	0.32		
AMEL mult95	1.36	1.55	1.55	1.55
MDEL mult99	2.27	3.11	3.11	3.11
AMEL (aq life)	3.26	0.50		
MDEL(aq life)	5.47	1.00		
MDEL/AMEL Multiplier	1.67	2.01	2.01	2.01
AMEL (human hlth)	1300.00	700	0.41	0.56
MDEL (human hlth)	2176.96	1404	0.82	1.12
minimum of AMEL for Aq. life vs HH	3.26	0.50	0.41	0.56
minimum of MDEL for Aq. Life vs HH	5.47	1.00	0.82	1.12
Current limit in permit (30-d avg) (final/interim)				
Current limits in permit (daily) (final/interim)	4.9			
Final limit - AMEL	3.3	0.5	0.41	0.56
Final limit - MDEL	5.5	1.0	0.82	1.12
Max Effl Conc (MEC)	7.6	6	1.90	1.90

ATTACHMENT G – CHRONIC TOXICITY – DEFINITIONS OF TERMS AND SCREENING PHASE REQUIREMENTS

CHRONIC TOXICITY

DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls; and

4. Concurrent reference toxicant tests.

C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE 1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

TEST SPECIES	(Scientific name)	EFFECT	DURATION	REFER-ENCE
alga	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	3
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	2
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	2
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar - Dendraster excentricus)	Strongylocentrotus purpuratus, S. franciscanus);	percent fertilization	1 hour	2
shrimp	(Americamysis bahia)	percent survival; growth	7 days	3
shrimp	(holmesimysis costata)	percent survival; growth	7 days	2
topsmelt	(Atherinops affinis)	percent survival; growth	7 days	2
silversides	(Menidia beryllina)	larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. USEPA/600/R-95/136. August 1995

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms as specified in 40CFR 136. Currently, this is USEPA/600/4-90/003, July 1994. Later editions may replace this version.

TABLE 2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	(Pimephales promelas)	survival; growth rate	7 days	4
water flea	(Ceriodaphnia dubia)	survival; number of young	7 days	4
alga	(Selenastrum capricornutum)	cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms as specified in 40CFR 136. Currently, this is the third edition, USEPA/600/4-91/002, July 1994. Later editions may replace this version.

TABLE 3

TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†): Marine/Estuarine:	0 4	1 or 2 3 or 4	3 0
Total number of tests:	4	5	3

† The fresh water species may be substituted with marine species if:
1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or
2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.
Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

-California Regional Water Quality Control Board

San Francisco Bay Region

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Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

ORDER NO. R2-2006-0035
NPDES NO. CA0005134

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**Chevron U.S.A. INC., Richmond Refinery** **Chevron Chemical Company LLC, Richmond Plant, and** **General Chemical Corporation, Richmond Works**
Name of Facility	**Richmond Refinery, Richmond**
Facility Address	**841 Chevron Way**
	Richmond, CA 94801
	Contra Costa County

The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated wastewater	37 °, 58', 15" N	122 °, 25', 45" W	San Pablo Bay
002	Firewater Testing	37 °, 55', 15" N	122 °, 24', 30" W	San Francisco Bay
003	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
004	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
005	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
006	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
007	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
008	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
009	Stormwater	37 °, 56', 00" N	122 °, 24', 15" W	San Francisco Bay
010	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
011	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Creek to San Pablo Bay
012	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Does not discharge
013	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
014	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
015	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
016	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
017	Stormwater	37 °, 55', 45" N	122 °, 24', 30" W	San Francisco Bay
018	Stormwater	37 °, 55', 45" N	122 °, 24', 00" W	San Francisco Bay
019	Stormwater	37 °, 57', 15" N	122 °, 24', 45" W	San Francisco Bay
020	Stormwater	37 °, 57', 15" N	122 °, 23', 15" W	Castro Street to San Pablo Bay
021	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Street to San Pablo Bay
022	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
023	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	

This Order was adopted by the Regional Water Board on:	**June 14, 2006**
This Order shall become effective on:	**June 14, 2006**
This Order shall expire on:	**June 13, 2011**
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 01-067 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted therein, and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted therein, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 14, 2006.

Bruce H. Wolfe, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 2, SAN FRANCISCO BAY REGION

ORDER NO. R2-2006-0035
NPDES NO. CA0005134

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- August 6, 2001 Staff Letter: *Requirement for Priority Pollutant Monitoring in Receiving Water and Wastewater Discharges*
- Resolution 74-10: *Policy Regarding Waste Discharger's Responsibilities to Develop and Implement Contingency Plans*
- Staff Report – *Statistical Analysis of Ultraclean Mercury Data from San Francisco Bay Area Refineries* (June 11, 2001)

I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	**Chevron U.S.A. INC., Richmond Refinery Chevron Chemical Company LLC, Richmond Plant, and General Chemical Corporation, Richmond Works**
Name of Facility	**Richmond Refinery, Richmond**
Facility Address	**841 Chevron Way**
	Richmond, CA 94801
	Contra Costa County
Facility Contact, Title, and Phone	**J.G. Whiteside, General Manager, (510) 242-4400**
Mailing Address	**Same**
Type of Facility	**Refinery**
Facility Design Flow	**7.6 mgd (2005 – average flow)**

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. **Background.** Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation (hereinafter Discharger) are currently discharging under Order No. 01-067 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005134. The Discharger submitted a Report of Waste Discharge, dated November 30, 2005, and applied for a NPDES permit renewal to discharge treated wastewater from its wastewater treatment plant, hereinafter Facility, to San Pablo Bay. The application was deemed complete on March 29, 2006.

B. **Facility Description.** The Discharger operates a petroleum refinery with an average crude-run throughput of approximately 224,000 barrels per day (12-month average from June 2004 through May 2005). This NPDES Permit regulates the discharge of effluent from the Discharger's wastewater treatment system, and the discharges of all stormwater associated with industrial activity from the refinery to San Pablo and San Francisco Bay.

The Discharger owns and operates its wastewater treatment plant. The treatment system first consists of three oil and water separators. From oil and water separators, wastewater is routed to a bioreactor that consists of four quadrants. The first two quadrants provide biological treatment through aeration, while the next two quadrants are used as settling basins. After the settling basins, the Discharger routes a portion of bioreactor effluent to its water enhancement wetland (Wetland). The remaining bioreactor effluent, and typically all wetland effluent is routed through granular activated carbon (GAC) before discharge through a deepwater diffuser (average depth of 30 to 50 feet) into San Pablo Bay, approximately 2000 feet offshore to the north of Point San Pablo (E-001). The Discharger has the option to discharge a portion of wetland effluent directly to outfall 001 (downstream of the GAC facility) provided wetland effluent discharges do not exceed a daily maximum of 3 mgd, and wetland effluent does not cause acute toxicity. Attachment B provides a topographic map of the area around the facility. Attachment C provides a flow schematic of the facility.

1. **Industrial Recycled Water Use:** The Regional Water Board supports the refining industry's use of recycled water to minimize the use of a scarce resource. The Discharger has replaced bay water in its firewater lines with recycled wastewater that has received biological treatment. In addition to the use of water drawn from the firewater lines (firewater) in the fire protection and safety systems (including emergency and non-emergency use), the Discharger also uses firewater in their process, storage, and material transfer areas and routes it back into the wastewater treatment system. During storm events, some firewater may commingle with stormwater runoff. Firewater may also be used for dust control and landscape maintenance within the Discharger's facilities.

2. **Municipal Recycled Water Use:** East Bay Municipal Utility District (EBMUD) owns and operates the North Richmond Water Reclamation Plant that since 1995 has provided tertiary treatment of West County Wastewater District's secondary effluent, to provide high quality recycled water to the Discharger. EBMUD plans to expand its recycled water production capabilities by 2008 by constructing and bringing into operation the Richmond Advanced Recycled Expansion water project. The Discharger may use recycled water for such things as

cooling tower make-up water, boiler make-up water, and landscape irrigation. Recycled water that is used for recycled water pipeline maintenance and cooling-water start-up activities may be discharged directly to the Discharger's wastewater treatment system.

C. **Legal Authorities.** This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and through special studies. Attachments A through I, which contain background information and rationale for Order requirements, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.

E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

F. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on 40 CFR § 419.50 since the refinery is classified as an "integrated refinery" as defined by the USEPA. Therefore, the USEPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to the discharge. The application of these guidelines and standards is based on production rates at the refinery. The effluent limitations in this Permit are based on facility production rates from June 2004 through May 2005. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. **Water Quality-based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.

1. Constituents Identified on the 303(d) List. On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (the 303(d) List). The State had prepared the 303(d) List pursuant to provisions of section 303(d) of the CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing San Pablo Bay include chlordane, DDT, diazinon, dieldrin, dioxin

compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium.

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Region, (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to San Pablo Bay and San Francisco Bay are as follows:

Discharge Points	Receiving Water Name	Beneficial Use(s)
001, 003, 008, 010-014, and 020-023	San Pablo Bay	Industrial Service Supply (IND), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)
002, 004-007, 009, and 015-019	San Francisco Bay	Industrial Service Supply (IND), Industrial Process Supply (PRO), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)

Requirements of this Order specifically implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

J. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.

K. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective

date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations is included in the Fact Sheet (Attachment F).

L. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.

M. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

N. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

O. **Standard and Special Provisions.** Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

P. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.

Q. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of any wastewater at a location or in a manner different from that described in this Order, is prohibited.

B. The discharge of Waste 001 at any point at which the wastewaters do not receive an initial dilution of at least 10:1 is prohibited. The Discharger may reuse a portion of Waste 001 for on-site landscape irrigation or in the facilities' firewater system, including the Richmond Long Wharf Fire Protection System, provided the Discharger complies with the Provisions of this Order.

C. The bypass or overflow of untreated or partially treated Waste 001 to waters of the State, either at the treatment plant or from the collection system, with the exception of bypass from the process discussed in Finding B (firewater systems, landscape irrigation, and dust control), is prohibited.

D. The discharge of Waste 011 to waters of the state is prohibited unless the following conditions occur: During any wet season in which a rainfall event occurs which yields a 24-hour precipitation with a return frequency of 25 years, an amount of Waste 011 may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rain fall event.

E. The discharge of Waste 013 is prohibited except when it has been demonstrated to the satisfaction of the Executive Officer it contains only non-contaminated stormwater. This demonstration must include measures to ensure that any synthetically lined surface impoundment is adequately decontaminated.

F. The discharge of Wetland effluent directly to outfall 001 (downstream of the GAC facility), is prohibited, unless the Discharger complies with Provision C.14 of this Order.

G. The discharge of non-segregated ballast water directly to Waters of the State, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

a. The discharge of treated wastewater shall maintain compliance with the following technology-based effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location E-001 as described in the attached Monitoring and Reporting Program (Attachment E):

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Five-day Biochemical Oxygen Demand	lbs/day	5100	9600		
Total Suspended Solids	lbs/day	4200	6600		
Total Organic Carbon	lbs/day	11000	21000		
Oil & Grease	lbs/day	1600	3000		
	mg/L	8	15		
Phenolic Compounds	lbs/day	22	70		
Ammonia as N	lbs/day	1900	4200		
Sulfide	lbs/day	28	62		
Total Chromium	lbs/day	25	72		
Hexavalent Chromium	lbs/day	2.1	4.6		
Settleable Solids	mL/ L-hr	0.1	0.2		
pH[1]	standard units			6.0	9.0

[1] If the Discharger employs continuous pH monitoring , it shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (a) the total time during which the pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month, and (b) no individual excursion from the required range of pH values shall exceed 60 minutes.

b. In addition to the monthly average and daily maximum pollutant weight allowances shown in A.1a, allocations for pollutants attributable to stormwater runoff and ballast water discharged as a part of Discharge Point 001 are permitted in accordance with the following schedules:

Stormwater Runoff Allocation

Parameter	Units	Monthly Average	Daily Maximum
BOD	mg/L	26	48
TSS	mg/L	21	33
TOC	mg/L	57	106
Oil & Grease	mg/L	8	15
Phenolic Compounds	mg/L	0.17	0.35
Total Chromium	mg/L	0.21	0.60
Hexavalent Chromium	mg/L	0.028	0.062

Ballast Water Allocation

Parameter	Units	Monthly Average	Daily Maximum
BOD	mg/L	26	48
TSS	mg/L	21	33
TOC	mg/L	57	106
Oil & Grease	mg/L	8	15
pH	Within the range of 6.0 to 9.0		

The total effluent limitation is the sum of the stormwater runoff allocation, the ballast water allocation, and the mass limits contained in A.1a. The Discharger shall compute the total effluent limitation (both maximum and average) on a monthly basis as shown in the Monitoring and Reporting Program, when necessary to show compliance with the concentration and mass limitations contained in A.1a.

2. Water Quality Based Effluent Limits – Discharge Point 001

a. The discharge of treated wastewater shall maintain compliance with the following water quality based effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location E-001 as described in the attached Monitoring and Reporting Program (Attachment E). These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this limitation.

Table 1. Toxic Substances Effluent Limitations [1, 5]

Constituent	Water Quality-Based Effluent Limits (WQBELs)		Interim Limits [2]	
	Average Monthly (AMEL) (µg/L)	Maximum Daily (MDEL) (µg/L)	Maximum Daily (µg/L)	Average Monthly (µg/L)
Copper	13	25		
Lead	7.4	15		
Mercury[3]	0.017	0.046		0.075
Nickel	45	66		
Selenium[2]	4.4	7.4	34	
Cyanide[2]	3.7	6.4	25	
TCDD Equivalents[6]			$1*10^{-7}$	
Heptachlor Epoxide	0.00088	0.0018		
Total PCBs[2, 4]	0.00017	0.00034	0.5	

Footnotes:

(1) (a) All analyses shall be performed using current USEPA methods, or equivalent methods approved in writing by the Executive Officer.

(b) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).

(2) Interim limits shall remain in effect for cyanide and selenium until April 27, 2010, and for total PCBs until May 17, 2010, or until the Board amends the limits based on site-specific objectives or the Waste Load Allocations in the TMDLs.

(3) Mercury: Effluent mercury monitoring shall be performed by using ultraclean sampling and analysis techniques to the maximum extent practicable, with a minimum level of 0.002 µg/l, or lower. The interim limit for mercury shall remain in effect until April 27, 2010, or until the Board amends the limit based on the Waste Load Allocation in the TMDL for mercury.

(4) The PCB limit applies to the sum of the following individual PCB compounds: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260.

(5) As outlined in Section 2.4.5 of the SIP, the following are Minimum Levels that the Discharger shall achieve for pollutants with effluent limits. The table below indicates the highest minimum level that the Discharger's laboratory must achieve for calibration purposes.

Constituent	Minimum Level	Units
Copper	2	µg/L
Lead	0.5	µg/L
Mercury	0.002	µg/L
Nickel	5	µg/L
Selenium	2	µg/L
Cyanide	5	µg/L
Heptachlor Epoxide	0.01	µg/L
Individual PCBs	0.5	µg/L

(6) TCDD Equivalents: The SIP does not contain an ML for this constituent, however, the Board requires use of one-half of those published in USEPA Method 1613. This interim limit shall remain effective until June 30, 2011, or until the Board amends the limits based on site-specific objectives or the Waste Load Allocations in the TMDLs.

b. Alternative Water Quality Based Effluent Limit for Cyanide[1]

If a cyanide SSO for the receiving water becomes legally effective, based on the assumptions in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco* Bay, dated November 10, 2005, upon its effective date, the following limits shall supercede those specified in A.2a, above.

MDEL of 38 µg/L, and AMEL of 22 µg/L

[1] The alternative WQBEL for cyanide will not become legally effective unless, as described in the Fact Sheet, the adopted site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average.

c. Whole Effluent Acute Toxicity: Representative samples of the discharge at discharge point 001 shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision C.8 of this Order:

The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:

(1) An eleven (11)-sample median value of not less than 90 percent survival; and
(2) An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

These acute toxicity limits are further defined as follows:

(1) 11-sample median limit:

Any bioassay test showing survival of 90 percent or greater is not a violation of this limit.

A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

(2) 90th percentile limit:

Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

d. Chronic Toxicity:

The survival of bioassay test organisms in the discharge at discharge point shall be:
(1) A three-sample median value of equal to or less than 10 TUc,
(2) A single-sample value of equal to or less than 20 TUc.

These chronic toxicity limits are defined as follows:
(1) A test sample showing chronic toxicity greater than 10 TUc represents consistent toxicity and a violation of this limitation, if two or more of the past three or less tests show toxicity greater than 10 TUc.
(2) A TUc equals 100/NOEL. The NOEL is the no observable effect level, determined from IC, EC, or NOEC values. These terms and their usage in determining compliance with the limitations are defined in the Attachment G of this Order. The NOEL shall be based on a critical life stage test using the most sensitive test species as specified by the Executive Officer. The Executive Officer may specify two compliance species if test data indicate that there is alternating sensitivity between the two species. If two compliance test species are specified; compliance shall be based on the maximum TUc value for the discharge sample based on a comparison of TUc values obtained through concurrent testing of the two species.
(3) A test sample showing chronic toxicity greater than 20 TUc represents a violation of this limitation.

3. Interim Mass Emission Limit - Mercury

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total mercury mass loading from discharge point 001 to San Pablo Bay has not increased by complying with the following:

a. Interim mass emission limit: The mass emission limit for mercury is 0.149 kilograms per month (kg/month). The monthly average shall be calculated by taking the arithmetic average of the current daily mass loading value, and all of the previous month's values. Compliance with this limit shall be evaluated using monthly moving averages of total mass load, computed as described below:

12-Month Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months

a. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each monthly Self-Monitoring Report. Compliance each month will be determined based on the 12-month moving averages over the previous twelve months of monitoring. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance. This requirement may be

satisfied by the 12-month moving average values calculated by the electronic reporting system (ERS).

b. The mercury TMDL and WLAs will supersede this mass emission limitation upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

4. Interim Mass Emission Limit - Selenium

Until TMDL and WLA efforts for selenium provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total selenium mass loading from the discharge point 001 to San Pablo Bay has not increased by complying with the following:

a. Interim mass emission limit: The mass emission limit for selenium is 2.38 lbs/day (running annual average). Running annual averages shall be calculated by taking the arithmetic average of the current daily mass loading value, and all of the previous year's values. The total selenium mass load shall not exceed this limit.

5. Stormwater Limits

The discharge from discharge points 002 through 023 containing constituents in excess or outside of the following limits, is prohibited:

Constituent	Units	Limitation
pH	standard units	Within 6.5 to 8.5
Oil & Grease	mg/L	daily maximum of 15
Total Organic Carbon	mg/L	daily maximum of 110
visible oil	----	none observed
visible color	----	none observed[1]

[1] Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

6. Effluent Limit Credit for Recycled Water Use

When the Discharger uses recycled water, credit for influent concentrations for constituents in this Order with mass or concentration based effluent limitations, shall be granted in the discharge according to the following procedure, provided the Discharger satisfies Provision C.6:

a. The Discharger shall sample and analyze for constituents for which effluent limit credit is sought at least as frequently as is required in the attached Self-Monitoring Program for that constituent. Influent sampling shall occur at influent sampling station I-002 defined in the Self-Monitoring Program.

b. The Discharger shall determine the time interval between introduction of a given constituent of concern in the influent recycled water and the first appearance of the constituent in the final effluent. This determination is subject to approval by the

Executive Officer, and must precede any calculation of effluent limit credit for the constituent.

c. Credit for constituents listed will be given on a mass and concentration basis.

Concentration Credit
Influent concentration multiplied by total influent reclaimed water flow volume for that monitoring interval will yield an influent mass for each constituent, which is valid for that monitoring interval. After the appropriate time lag interval described in b. above, this influent mass of the constituent is then divided by the total effluent flow volume for that monitoring period to give a concentration credit for the effluent that will apply for the monitoring interval. The monitoring interval is the time between sampling days. For example, weekly sampling yields a one week monitoring interval. A schematic example follows:

ex. Constituent B is monitored weekly. The lag time is Y days.

Step 1: (Influent concentration of recycled water B- influent concentration of potable water B) x (Total Influent Volume of Reclaimed Water for one week) = (Influent mass of B)

Step 2: (Influent mass of B) / (Total Waste 001 discharge volume for one week, Y days after influent week) = (Concentration credit to be subtracted from concentration of constituent in the effluent, valid for that one week period)

Mass Credit
Influent concentration multiplied by total influent reclaimed water flow volume for that monitoring interval will yield an influent mass for each constituent, which is valid for that monitoring interval. After the appropriate time lag interval described in b. above, this influent mass of the constituent is then divided by the number of days in that monitoring period to give a mass credit for the effluent that will apply for the monitoring interval. The monitoring interval is the time between sampling days. For example, weekly sampling yields a one week monitoring interval. A schematic example follows:

ex. Constituent B is monitored weekly. The lag time is Y days.
Step 1: (Influent concentration of reclaimed water B- influent concentration of potable water B) x (Total Influent Volume of Reclaimed Water for one week) = (Influent mass of B)

Step 2: (Influent mass of B) / (The Number of Days in that monitoring interval) = (Mass credit to be subtracted from mass of constituent in the effluent, valid for that one week period)

B. Land Discharge Specifications – N/A

C. Reclamation Specifications – N/A

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in waters of the State at any place:

1. Floating, suspended, or deposited macroscopic particulate matter or foam.

2. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.

3. Alteration of temperature, turbidity, or apparent color beyond present natural background levels.

4. Visible, floating, suspended, or deposited oil or other products of petroleum origin.

5. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

6. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.

7. The discharges shall not cause the following limits to be exceeded in waters of the State at any one place within one foot of the water surface.

   a. Dissolved Oxygen: 5.0 mg/L, minimum

   The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

   d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
   0.16 mg/L as N, maximum

   e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent

that such growths cause nuisance or adversely affect beneficial uses.

8. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

B. Groundwater Limitations – N/A

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (Attachment I), including any amendments thereto. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall apply.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. **Reopener Provisions**
   The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

   a. If present or future investigations demonstrate that the discharge(s) governed by this Order will, or cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.

   b. As new or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs.

   c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.

   d. An administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge; and

   e. as authorized by law.

2. **Permit Compliance and Rescission of Previous Waste Discharge Requirements**
   The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order on the effective date of this NPDES Permit. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 01-067. Order No. 01-067 is hereby rescinded upon the effective date of this Order.

3. Effluent Characterization for Selected Constituents

The Discharger shall monitor and evaluate the discharge at E-001 for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under Effluent Monitoring for Major Dischargers. The Discharger shall conduct monitoring as specified in the table below:

Constituent type	Sampling Frequency	EPA/SM Method Number
Metals	As specified in SMP (for those not specified in SMP, Semiannual)	As specified in August 6, 2001, letter or SMP
Volatiles	Semiannual	EPA 601 or 624
Semi-volatiles	Semiannual	EPA 604 or 625
Pesticides	Semiannual	EPA 608
PAHs	Semiannual	EPA 610
Dioxin and Furans	As specified in SMP	EPA 1613
Total Solids	Semiannual concurrent with dioxin and furans monitoring	EPA Method 160.3/SM 2540B
Tributyltin	Semiannual	Batelle N-0959-2606
Diazinon	Semiannual	EPA 614

This information shall be included with the annual report required by Part A of the Self-Monitoring Program. The first annual report under this Order is due March 1, 2007. The report shall summarize the data collected to date and describe future monitoring to take place. A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the permit expiration date. This final report shall be submitted with the application for permit reissuance. Reporting requirements under this section may be satisfied by: (a) monthly reporting using the electronic reporting system (ERS), or an equivalent electronic system required by the Regional Water Board or State Water Board, and (b) submittal of a complete application for permit reissuance no later than 180 days prior to the permit expiration date.

4. Receiving Water Monitoring

The Discharger shall continue to collect or participate in collecting background ambient receiving water data with other dischargers and/or through the RMP. This information is required to perform RPAs and to calculate effluent limitations. To fulfill this requirement, the Discharger shall submit (or cause to have submitted on its behalf) data sufficient to characterize the concentration of each toxic pollutant listed in the CTR in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has mixed with the receiving waters.

The sampling frequency and sampling station locations shall be specified in the sampling plan. The frequency of the monitoring shall consider the seasonal variability of the receiving water. It would be acceptable to select stations representative of incoming ocean waters because the combined effluent discharges to the Bay through deepwater diffusers.

5. Pollution Prevention and Minimization Program

a. The Discharger shall conduct, in a manner acceptable to the Executive Officer, a Pollution Minimization Program to reduce pollutant loadings of mercury, selenium, cyanide, PCBs, and dioxin-TEQ to the treatment plant, and therefore, to the receiving waters.

b. The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than March 1 of each year. Annual reports shall cover January through December of the preceding year. Annual reports shall include at least the following information.

i. A brief description of its treatment facilities and treatment processes.

ii. *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.

iii. *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

iv. *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks itself or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time-line shall be included for the implementation of each task.

v. *Outreach to employees.* The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input to the Program.

vi. *Discussion of criteria used to measure the program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iii), b. (iv), and b. (v).

vii. *Documentation of efforts and progress.* This discussion shall detail all the Discharger's activities in the Pollution Minimization Program during the reporting year.

viii. *Evaluation of program's and tasks' effectiveness.* The Discharger shall use the criteria established in b. (vi) to evaluate the Program's and tasks' effectiveness.

ix. *Identification of Specific Tasks and Time Schedules for Future Efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the treatment facilities, and subsequently in its effluent.

c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:

i. A sample result is reported as detected, but not quantified (less than the ML) and the effluent limitation is less than the reported ML; or

ii. A sample result is reported as not detected (less than the MDL) and the effluent limitation is less than the MDL;

The Discharger shall expand its existing Pollution Minimization Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant (1) when there is evidence that it is present in the effluent above an effluent limitation and either (c)(i), or c(ii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

d. If triggered by the reasons in c. above and notified by the Executive Officer, the Discharger's Pollution Minimization Program shall, within 6 months, also include the following:

i. An annual review and semiannual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data.

ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data.

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation.

iv. Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy.

v. An annual status report that shall be sent to the Regional Water Board including the following:
(1) All Pollution Minimization Program monitoring results for the previous year
(2) A list of potential sources of the reportable priority pollutant(s)
(3) A summary of all actions undertaken pursuant to the control strategy
(4) A description of actions to be taken in the following year.

e. To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue, modify, or expand its Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in the Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

6. Mass and Concentration Credits

Prior to obtaining mass or concentration credits for using recycled water, the Discharger shall submit a technical report that demonstrates such credits will not cause impairment of beneficial uses in the vicinity of its discharge, such as an acutely toxic zone to aquatic organisms. The demonstration shall include, but not be limited to an assessment of the results of whole effluent toxicity testing, and mass balance calculations that compare the as-discharged effluent concentrations (i.e., before credits) to potential WQBELs for constituent(s) for which credits are sought. The report shall also include one or more examples of how the credit calculations will be performed and reported based on the site-specific conditions of the Discharger. Following receipt of written approval of the technical report from the Executive Officer, this provision shall be considered satisfied.

7. Storm Water Pollution Prevention Plan and Annual Report

The Discharger shall update and submit an updated Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer by September 1st of each year. If the Discharger determines that it does not need to update its SWPPP, it shall submit a letter to the Executive Officer that indicates no revisions are necessary and the last year it updated its SWPPP. The Discharger shall implement the SWPPP, and the SWPPP shall comply with the requirements contained in the attached Standard provisions.

The Discharger shall also submit an annual storm water report by July 1 of each year covering data for the previous wet weather season for E-002 through E-023. The annual storm water report shall, at a minimum, include: (a) a tabulated summary of all sampling results and a summary of visual observations taken during the inspections; (b) a comprehensive discussion of the compliance record and any corrective actions taken or planned to ensure compliance with waste discharge requirements; and (c) a comprehensive discussion of source identification and control programs for constituents that do not have effluent limitations (e.g., total suspended solids).

8. Whole Effluent Acute Toxicity

Compliance with acute toxicity requirements of this Order shall be achieved in accordance with the following:

From permit adoption date:
(1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through bioassays.
(2) Test organism shall be rainbow trout unless specified otherwise in writing by the Executive Officer.
(3) All bioassays shall be performed according to 40 CFR 136, currently the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"5th Edition, October 2002, EPA Publication Number 821-R-02-012. Exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

9. Chronic Toxicity

Consistent with the Basin Plan's specified approach for dischargers monitoring chronic toxicity on a quarterly basis, the Discharger shall comply with the following tiered approach with trigger values to ensure that potential chronic toxicity is addressed in a timely fashion.

a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order.

b. If data from routine monitoring exceeds the evaluation parameter in 9.c. below, then the Discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monthly monitoring.

c. Chronic toxicity evaluation parameter is as follows:

   i. A single sample maximum value of equal to or greater than 20 TU_c, or a three sample median greater than or equal to 10 TU_c.
   ii. This parameter is defined as follows:
   (1) TU_c (chronic toxicity unit): A TU_c equals 100/NOEL (e.g., if NOEL = 100, then toxicity = 1 TUc). NOEL is the no-observed effect level determined from IC, EC, or NOEC values.
   (2) The terms IC, EC, NOEL and NOEC and their use are defined in Attachment A of the SMP.

d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameter, then routine monitoring shall be resumed.

e. If accelerated monitoring tests continue to exceed the evaluation parameter (i.e., any two consecutive tests > 10 TU_c), then the Discharger shall initiate a chronic TRE.

f. The TRE shall be conducted in accordance with the following:

i. The Discharger shall prepare and submit to the Regional Water Board for Executive Officer approval a TRE workplan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.

ii. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.

iii. The TRE shall be conducted in accordance with an approved workplan.

iv. The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including USEPA guidance materials. The TRE should be conducted as a tiered evaluation process, such as summarized below:
(1) Tier 1 consists of basic data collection (routine and accelerated monitoring).
(2) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
(3) Tier 3 consists of a toxicity identification evaluation (TIE).
(4) Tier 4 consists of an evaluation of options for additional effluent treatment processes.
(5) Tier 5 consists of an evaluation of options for modifications of in-plant treatment processes.
(6) Tier 6 consists of implementation of selected toxicity control measures, as well as follow-up monitoring and confirmation of implementation success.

v. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.

vi. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies should be employed.

vii. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

viii. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of compliance with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

ix. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of the causes and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water

Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

g. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests, and definitions of terms used in the chronic toxicity monitoring are identified in Attachment G to this Order. The Discharger shall comply with these requirements as applicable to the discharge.

10. Optional Mass Offset

The Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d) listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

11. Contingency Plan Update

a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (attached), and as prudent in accordance with current industrial facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

b. The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to its Contingency Plan.

12. Collection System Maintenance

Within 60 days of the effective date of this Order, the Discharger shall document (a) current preventative maintenance activities to prevent spills and leaks (e.g., percentage of collection system that it cleans and inspects on an annual basis, how cleaning and inspections occur, and how it determines which portions of the collection system need cleaning, sealing, or replacing), (b) past spills and corrective measures taken to avoid future spills (i.e., document that collection system maintenance is more proactive rather than reactive), and (c) any proposed upgrades to the collection system that will occur within the next five years.

13. Actions for Compliance Schedule Pollutants

This Order grants compliance schedules for mercury, selenium, cyanide, PCBs, and dioxin-TEQ. Pursuant to Section 2.1 of the SIP and Chapter 4 of the Basin Plan, the Discharger shall (a) conduct pollution minimization in accordance with Provision C.5, (b) participate in and support the development of a TMDL or an SSO for mercury, selenium, cyanide, PCBs, and dioxin-TEQ, and (c) submit an update to the Regional Water Board in the annual self-monitoring report to document its efforts toward development of TMDL(s) or SSO(s). Regional Water Board staff shall review the status of TMDL development. In the event

TMDL(s) or SSO(s) are not developed for mercury, selenium, cyanide, or PCBs by July 1, 2009, the Discharger shall submit by July 1, 2009, a schedule that documents how it will further reduce pollutant concentrations to ensure compliance with the final limits specified in Effluent Limitations and Discharge Specifications A.2.

14. Wastewater Discharges from the Wetland

The Discharger may discharge Wetland effluent directly to outfall 001 (downstream of the GAC facility) provided Wetland effluent discharges do not exceed a daily maximum of 3 mgd, and Wetland effluent does not cause acute toxicity. To document that Wetland effluent does not cause acute toxicity, the Discharger must show that two consecutive weekly flow-through bioassays demonstrate at least 80% survival. Acute toxicity testing on Wetland effluent shall conform to the requirements in this Order for Waste 001 (e.g., test species shall be rainbow trout). Should Wetland toxicity tests show less than 80% survival, the Discharger must route Wetland effluent through its GAC facility before discharging to outfall 001. The Discharger may resume discharging Wetland effluent directly to outfall 001 after two consecutive Wetland toxicity tests, started at least five days apart, demonstrate at least 80% survival. In case the Discharger decides to route Wetland effluent directly to outfall 001, it shall report the daily flow rate of this treated wastewater, and the results of acute toxicity testing.

15. Changes in Control and Ownership

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

VII. Compliance Determination

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. Average Monthly Effluent Limitation (AMEL).
If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. Average Weekly Effluent Limitation (AWEL).
If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

C. Maximum Daily Effluent Limitation (MDEL).
If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

D. Instantaneous Minimum Effluent Limitation.
If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

E. Instantaneous Maximum Effluent Limitation.
If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

F. Six-month Median Effluent Limitation.

If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median limitation.

ATTACHMENT A – DEFINITIONS

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

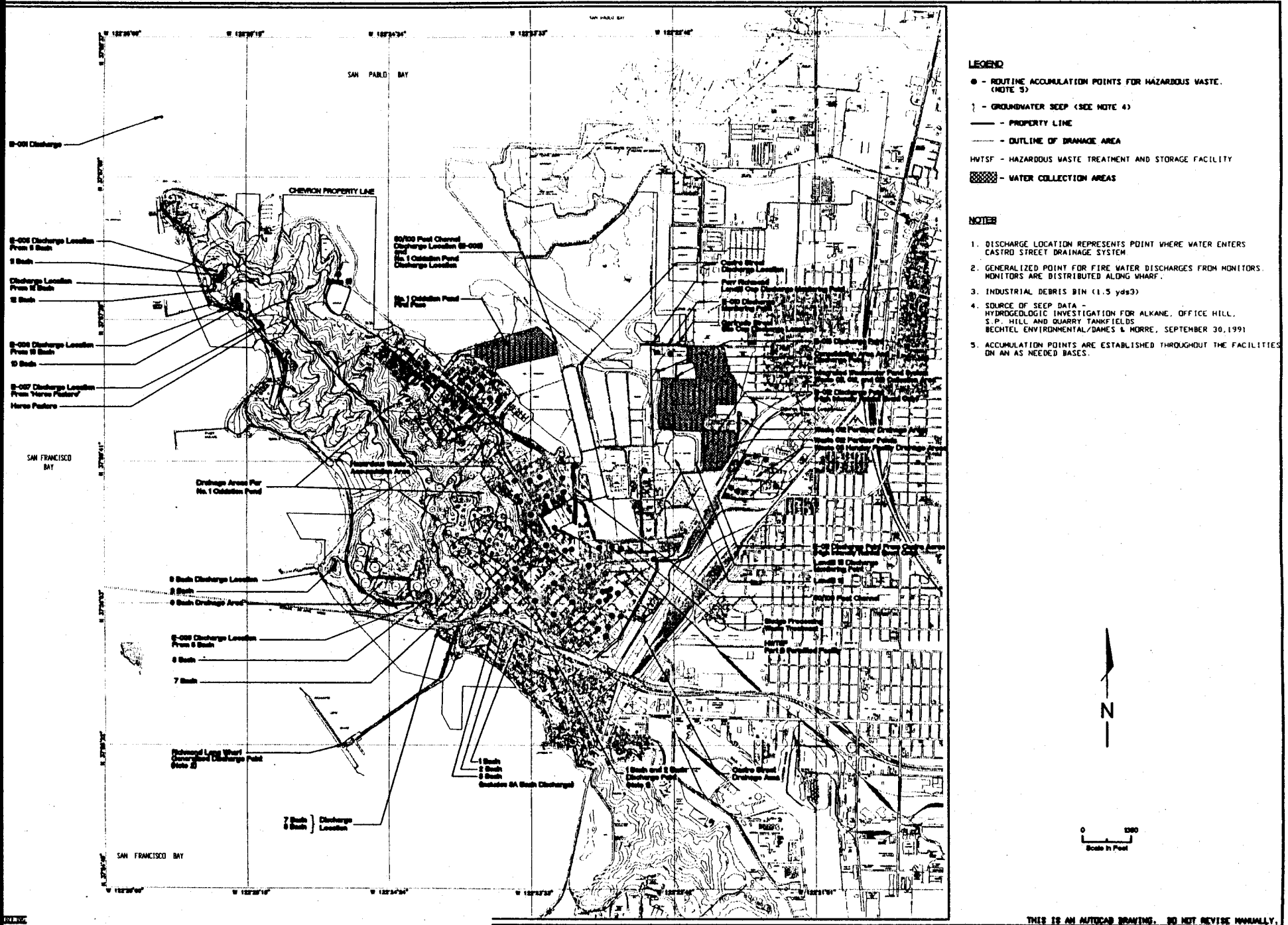
Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL): the highest allowable daily discharge of a pollutant.

Six-month Median Effluent Limitation: the highest allowable moving median of all daily discharges for any 180-day period.

ATTACHMENT B – TOPOGRAPHIC MAP (ATTACHED)



Attachment B – Topographic Map

THIS IS AN AUTOCAD DRAWING. DO NOT REVISE MANUALLY.

Chevron
Richmond Refinery

03/29/2006 DWG

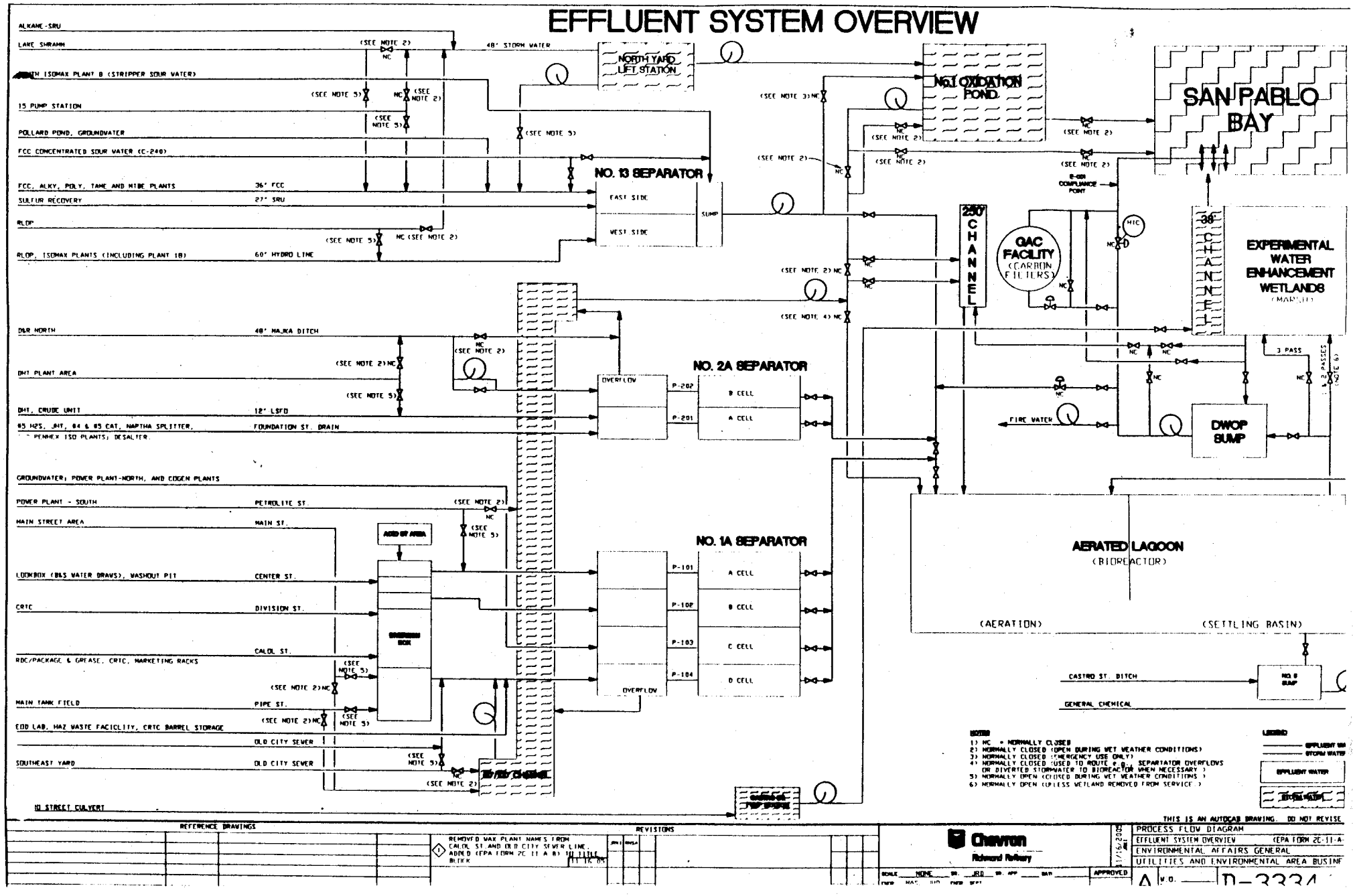
NPDES APPLICATION MAP
DISCHARGE LOCATIONS AND DRAINAGE AREAS
ENVIRONMENTAL AFFAIRS GENERAL
ENVIRONMENTAL AND SAFETY DIVISION

SCALE 1"=1360'-0" DR. JRD DR. APP. DATE
DES. JHR DES. SUPT.
CHK'D. SUPT.
APPROVED

A V.O. S.O. D-700840-2

ATTACHMENT C – FLOW SCHEMATIC (ATTACHED)

Attachment C – Flow Schematic



ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [*40 CFR §122.41(a)*].

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [*40 CFR §122.41(a)(1)*].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [*40 CFR §122.41(c)*].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [*40 CFR §122.41(d)*].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [*40 CFR §122.41(e)*].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [*40 CFR §122.41(g)*].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [*40 CFR §122.5(c)*].

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [*40 CFR §122.41(i)*] [*CWC 13383(c)*]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [*40 CFR §122.41(i)(1)*];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [*40 CFR §122.41(i)(2)*];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [*40 CFR §122.41(i)(3)*];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [*40 CFR §122.41(i)(4)*].

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [*40 CFR §122.41(m)(1)(i)*].

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [*40 CFR §122.41(m)(1)(ii)*].

2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3 and I.G.5 below [*40 CFR §122.41(m)(2)*].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [*40 CFR §122.41(m)(4)(i)*]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [*40 CFR §122.41(m)(4)(A)*];

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [*40 CFR §122.41(m)(4)(B)*]; and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [*40 CFR §122.41(m)(4)(C)*].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [*40 CFR §122.41(m)(4)(ii)*].

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [*40 CFR §122.41(m)(3)(i)*].

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [*40 CFR §122.41(m)(3)(ii)*].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [*40 CFR §122.41(n)(1)*].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review [*40 CFR §122.41(n)(2)*].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [*40 CFR §122.41(n)(3)*]:

a. An upset occurred and that the Discharger can identify the cause(s) of the upset [*40 CFR §122.41(n)(3)(i)*];

b. The permitted facility was, at the time, being properly operated [*40 CFR §122.41(n)(3)(i)*];

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [*40 CFR §122.41(n)(3)(iii)*]; and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [*40 CFR §122.41(n)(3)(iv)*].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [*40 CFR §122.41(n)(4)*].

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [*40 CFR §122.41(f)*].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [*40 CFR §122.41(b)*].

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [*40 CFR §122.41(l)(3)*] [*40 CFR §122.61*].

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [*40 CFR §122.41(j)(1)*].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [*40 CFR §122.41(j)(4)*] [*40 CFR §122.44(i)(1)(iv)*].

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at

least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [*40 CFR §122.41(j)(2)*].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [*40 CFR §122.41(j)(3)(i)*];
2. The individual(s) who performed the sampling or measurements [*40 CFR §122.41(j)(3)(ii)*];
3. The date(s) analyses were performed [*40 CFR §122.41(j)(3)(iii)*];
4. The individual(s) who performed the analyses [*40 CFR §122.41(j)(3)(iv)*];
5. The analytical techniques or methods used [*40 CFR §122.41(j)(3)(v)*]; and
6. The results of such analyses [*40 CFR §122.41(j)(3)(vi)*].

C. Claims of confidentiality for the following information will be denied [*40 CFR §122.7(b)*]:

1. The name and address of any permit applicant or Discharger [*40 CFR §122.7(b)(1)*]; and
2. Permit applications and attachments, permits and effluent data [*40 CFR §122.7(b)(2)*].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, SWRCB, or USEPA within a reasonable time, any information which the Regional Water Board, SWRCB, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, SWRCB, or USEPA copies of records required to be kept by this Order [*40 CFR §122.41(h)*] [*CWC 13267*].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, SWRCB, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [*40 CFR §122.41(k)*].
2. All permit applications shall be signed as follows:
   a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities,

provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [*40 CFR §122.22(a)(1)*];

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [*40 CFR §122.22(a)(2)*]; or

c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [*40 CFR §122.22(a)(3)*].

3. All reports required by this Order and other information requested by the Regional Water Board, SWRCB, or USEPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in paragraph (2.) of this provision [*40 CFR §122.22(b)(1)*];

   b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [*40 CFR §122.22(b)(2)*]; and

   c. The written authorization is submitted to the Regional Water Board, SWRCB, or USEPA [*40 CFR §122.22(b)(3)*].

4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, SWRCB or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22(c)].

5. Any person signing a document under paragraph (2.) or (3.) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [*40 CFR §122.22(d)*].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [*40 CFR §122.41(l)(4)*].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or SWRCB for reporting results of monitoring of sludge use or disposal practices [*40 CFR §122.41(l)(4)(i)*].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [*40 CFR §122.41(l)(4)(ii)*].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [*40 CFR §122.41(l)(4)(iii)*].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [*40 CFR §122.41(l)(5)*].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [*40 CFR §122.41(l)(6)(i)*].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [*40 CFR §122.41(l)(6)(ii)*]:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(A)*].

b. Any upset that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(B)*].

c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [*40 CFR §122.41(l)(6)(ii)(C)*].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [*40 CFR §122.41(l)(6)(iii)*].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [*40 CFR §122.41(l)(1)*]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [*40 CFR §122.41(l)(1)(i)*]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [*40 CFR §122.41(l)(1)(ii)*].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [*40 CFR §122.41(l)(1)(iii)*].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or SWRCB of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [*40 CFR §122.41(l)(2)]*.

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [*40 CFR §122.41(l)(7)*].

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, SWRCB, or USEPA, the Discharger shall promptly submit such facts or information [*40 CFR §122.41(l)(8)*].

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [*40 CFR §122.41(a)(2)*] [*CWC 13385 and 13387*].

B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [*40 CFR §122.41(a)(3)*].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon

conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [*40 CFR §122.41(j)(5)*].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [*40 CFR §122.41(k)(2)*].

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [*40 CFR §122.42(a)*]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(1)*]:

   a. 100 micrograms per liter (µg/L) [*40 CFR §122.42(a)(1)(i)*];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(1)(ii)*];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(1)(iii)*]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(1)(iv)*].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(2)*]:

   a. 500 micrograms per liter (µg/L) [*40 CFR §122.42(a)(2)(i)*];

   b. 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(2)(ii)*];

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(2)(iii)*]; or

d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(2)(iv)*].

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [*40 CFR §122.42(b)*]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [*40 CFR §122.42(b)(1)*]; and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [*40 CFR §122.42(b)(2)*].

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [*40 CFR §122.42(b)(3)*].

Attachment E – Monitoring and Reporting Program – Table of Contents

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) at 40 CFR §122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the Self-Monitoring Program, Part A, adopted August 1993 (SMP). The MRP and SMP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits. The Regional Water Board will find the Discharger in violation of effluent limitations if the discharge concentration exceeds the effluent limitation and the Reporting Level for the analysis of that constituent.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1: Monitoring Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
Recycled Water	I-002	Located at any point in the pipe which delivers only recycled water to the facility, but upstream of any wastewater treatment unit, blending point, or point of use
Treated Wastewater	E-001	At any point in the discharge line from the deep water discharge pump sump such that the sample is representative of treated wastewater
Firewater Testing	E-002	At any point where the sample is representative of Waste 002
Stormwater	E-003	Same as above except for Waste 003
Stormwater	E-004	Same as above except for Waste 004
Stormwater	E-005	Same as above except for Waste 005
Stormwater	E-006	Same as above except for Waste 006
Stormwater	E-007	Same as above except for Waste 007
Stormwater	E-008	Same as above except for Waste 008
Stormwater	E-009	Same as above except for Waste 009
Stormwater	E-010	Same as above except for Waste 010
Stormwater	E-011	Same as above except for Waste 011
Stormwater	E-012	Does not discharge
Stormwater	E-013	Same as above except for Waste 013
Stormwater	E-014	Same as above except for Waste 014
Stormwater	E-015	Same as above except for Waste 015
Stormwater	E-016	Same as above except for Waste 016
Stormwater	E-017	Same as above except for Waste 017
Stormwater	E-018	Same as above except for Waste 018
Stormwater	E-019	Same as above except for Waste 019
Stormwater	E-020	Same as above except for Waste 020
Stormwater	E-021	Same as above except for Waste 021
Stormwater	E-022	Same as above except for Waste 022
Stormwater	E-023	Same as above except for Waste 023
Receiving Water	C-001	At any point in San Pablo Bay, approximately 2000 feet north of Point San Pablo
Land observation	P-1	At the point of discharge of Waste 011 to the drainage ditch tributary to Castro Creek
Land observation	P-3	At the point of discharge of Waste 012 to the drainage ditch tributary to Castro Creek
Rainfall	R-1	The nearest official recording National Weather Service rainfall station or other station acceptable to the Executive Officer

III. INFLUENT MONITORING REQUIREMENTS – N/A

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location E-001

1. The Discharger shall monitor treated wastewater at E-001 as follows:

Table 2: Schedule of Sampling, Analyses, and Observations [1]

Parameter	Units	Sample Type [7]	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate [2]	mgd	Metered	Continuous	
Temperature	°F	Metered	Continuous	
pH	s.u.	Meter	Continuous	
Settleable Solids	mL/ L-hr	Grab	Monthly	
BOD (5-day at 20°C)	mg/L lb/day	24-hour composite	Monthly	
TSS	mg/L lb/day	24-hour composite	Monthly	
Oil & Grease	mg/L lb/day	Composite [3]	Monthly	
Ammonia as N	mg/L lb/day	Grab	Monthly	
TOC	mg/L lb/day	Grab	Monthly	
Total Phenols	mg/L lb/day	Grab	Monthly	
Total Chromium [8]	µg/L lb/day	24-hour Composite	Monthly	
Hexavalent Chromium	µg/L lb/day	Grab	Monthly	
Sulfide	mg/L lb/day	Grab	Monthly	
Copper	µg/L	24-hour Composite	Monthly	
Lead	µg/L	24-hour Composite	Monthly	
Mercury	µg/L	[6]	Monthly	
Nickel	µg/L	24-hour Composite	Monthly	
Selenium	µg/L	24-hour Composite	Weekly	[9]
Cyanide	µg/L	Grab	Monthly	[10]
Heptachlor Epoxide	µg/L	Grab	Quarterly	
Total PCBs	µg/L	Grab	Twice/ Year	[11]
2,3,7,8 - TCDD and Congeners	pg/L	Grab	Twice/ Year	[12]
Acute Toxicity [4]	percent survival	Composite	Weekly	
Chronic Toxicity [5]	TU_c	Composite	Quarterly	

[1] Indicates sampling is required during the entire year. The Discharger shall use approved USEPA Methods with the lowest Minimum Levels specified in the SIP and described in footnote 5 of Effluent Limitations A.2, and in the August 6, 2001, letter

[2] Flow Monitoring: Effluent flow shall be measured continuously at E-001, and recorded daily. For effluent flows, the following information shall also be reported, monthly:

Daily Flow (MG)
Average Daily Flow (MGD)
Maximum Daily Flow (MGD)
Minimum Daily Flow (MGD)
Total Flow Volume (MG)

Reporting requirements under this section may be satisfied by monthly reporting using the electronic reporting system (ERS), or an equivalent electronic system required by the Regional Water Board or State Water Board.

[3] Each Oil & Grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite sample for extraction and analysis.

[4] Bioassays: Monitoring of the bioassay water shall include, on a daily basis, the parameters specified in the USEPA-approved method, such as pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be kept onsite, and made available upon request. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted as soon as practicable with new fish and-shall continue back to back until compliance is demonstrated.

[5] A Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V of the SMP contained in this Order.

[6] The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples. Use ultra-clean sampling (USEPA 1669) to the maximum extent practicable and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245), if that alternative method has an ML of 2 ng/L or less.

[7] Composite sampling: 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for inorganic pollutants maybe combined prior to analysis. Samples for organic pollutants should be analyzed separately. Samples shall be taken on random weekdays.

[8] The Discharger may, at its option, comply with the limits for hexavalent chromium by using total chromium results. In this case, analysis for hexavalent chromium is waived.

[9] Selenium must be analyzed for by ICP/MS, or the atomic absorption gaseous hydride procedure (USEPA Method No. 200.8, or Standard Method No. 3114B or 3114C).

[10] The Discharger may, at their option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, USEPA Method OI 1677, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.

[11] The latest versions of USEPA Methods 608 (or 8080) shall be used to determine compliance with the limits for Total PCBs. The Discharger shall attempt to achieve the lowest detection limits commercially available using this method and shall instruct its lab to calibrate to the minimum level indicated in footnote 5 of Effluent Limitation A.2.

[12] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one-half of the USEPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. Alternative methods of analysis must be approved by the Executive Officer.

B. Monitoring Locations E-002 through E-023

1. The Discharger shall monitor at E-002, E-003, and E-008 through E-010, and E-014 through E-023 as follows:

Table 3: Schedule of Sampling, Analyses, and Observations for Stormwater [1]

Parameter	Units	Sample Type	Minimum Sampling Frequency [2]	Required Test Method
Oil & Grease	mg/L	Grab	At least twice/year	
TOC	mg/L	Grab	At least twice/year	
pH	s.u.	Grab	At least twice/year	
TSS	mg/L	Grab	At least twice/year	
Specific Conductance	µmhos/cm	Grab	At least twice/year	
Visual Observations	---	Visual	At least twice/year	

[1] The Discharger shall monitor the first storm event of the year. If the Discharger finds Oil & Grease, TOC, or pH outside the discharge limitations specified in this Order, it shall accelerate monitoring to monthly at that respective station for the duration of the rainy season.

[2] The Discharger shall monitor E-002 for the parameters specified at least monthly. For stormwater discharges that are controlled (i.e., out of basins), the Discharger shall monitor on each occurrence.

2. The Discharger shall monitor stormwater at E-011 and E-013, as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Test Method
Oil & Grease	mg/L	Grab	On each occurrence	
TOC	mg/L	Grab	On each occurrence	
pH	s.u.	Grab	On each occurrence	
TSS	mg/L	Grab	On each occurrence	
Specific Conductance	µmhos/cm	Grab	On each occurrence	
Priority Pollutants	µg/L	Grab	On each occurrence	In accordance with the August 6, 2001, letter
Visual Observations	---	Visual	On each occurrence	

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Whole Effluent Acute Toxicity
Compliance with whole acute toxicity requirements of this Order shall be achieved in accordance with the following:

1. Acute toxicity effluent limits shall be evaluated by measuring survival of test organisms exposed to a 96-hour flow through bioassays;

2. The test organism shall be rainbow trout unless specified otherwise in writing by the Executive Officer, and

3. All bioassays shall be performed according to 40 CFR Part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition. Exceptions may be granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

B. Chronic Toxicity Monitoring Requirements

1. Sampling. The Discharger shall collect 24-hour composite samples of the treatment facilities' effluent at the compliance point specified in Table 1 of the SMP, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

2. Test Species. Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive tests species identified by screening phase testing described in Attachment A of the SMP. The Discharger shall conduct routine monitoring with the species approved by the Executive Officer. The approved species at this time is giant kelp (*Macrocystis pyrifera*).

   If the Discharger uses two or more species, after at least twelve test rounds, the Discharger may request the Executive Officer to decrease the required frequency of testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TUc values specified in the effluent limitations was never observed using that test species.

3. Conditions for Accelerated Monitoring: The Discharger shall accelerate the frequency of monitoring to monthly, or as otherwise specified by the Executive Officer, after exceeding a single sample maximum of 20 TUc, or a three sample median of 10 TU_c.

4. Methodology: Sample collection, handling and preservation shall be in accordance with USEPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

5. Dilution Series: The Discharger shall conduct tests at 100%, 50%, 25%, 10%, and 5%, and 2.5%. The "%" represents percent effluent as discharged.

C. Chronic Toxicity Reporting Requirements

1. Routine Reporting: Toxicity test results for the current reporting period shall include the following, at a minimum, for each test.

   a. Sample date(s)
   b. Test initiation date
   c. Test species
   d. End point values for each dilution (e.g., number of young, growth rate, percent survival)
   e. NOEC value(s) in percent effluent
   f. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) in percent effluent
   g. TUc values (100/NOEC, $100/IC_{25}$, and $100/EC_{25}$)
   h. Mean percent mortality (± s.d.) after 96 hours in 100% effluent
   i. NOEC and LOEC values for reference toxicant test(s)
   j. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
   k. Available water quality measurements for each test (i.e., pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

2. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include the items listed above under V.C, items a, c, e, f(IC_{25} or EC_{25}), g, and h.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – N/A

VII. RECLAMATION MONITORING REQUIREMENTS – N/A

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location C-001

1. The Discharger shall monitor San Pablo Bay at C-001 as follows:

Table 4 – Receiving Water Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	s.u.	Grab	Annual
Temperature	°F	Grab	Annual
Dissolved Oxygen	mg/L	Grab	Annual
Sulfides	mg/L	Grab	Annual
Unionized Ammonia	mg/L	Grab	Annual

IX. OTHER MONITORING REQUIREMENTS – N/A

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D and G) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit self-monitoring reports in accordance with the requirements described below.

2. The Discharger shall submit monthly Self Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due no later than 30 days after the end of each calendar month.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table 5 – Monitoring Periods and SMR Due Date

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Effective date of permit	All	Within 30 days of the end of the calendar month of sampling
Weekly	Effective date of permit	Sunday through Saturday	Within 30 days of the end of the calendar month of sampling
Monthly	Effective date of permit	1st day of calendar month through last day of calendar month	Within 30 days of the end of the calendar month of sampling
Quarterly	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	April 30 July 30 October 30 January 30

Twice/Year	Effective date of permit	January 1 through June 30 July 1 through December 31	July 30 January 30
Annually	Effective date of permit	January 1 through December 31	February 1

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. The Dischargers shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.

6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D), to the address listed below:

   Executive Officer
   Attn: NPDES Division
   California Regional Water Quality Control Board

San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   State Water Resources Control Board
   Discharge Monitoring Report Processing Center
   Post Office Box 671
   Sacramento, CA 95812

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

D. Other Reports

1. **Annual Reports.** By February 1st of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (Attachment I).

E. Miscellaneous Reporting

1. The Discharger shall submit a clear and legible sketch showing the locations of all ponds, treatment facilities, and points of waste discharge. The map shall be updated by the Discharger as changes occur.

   If the Discharger seeks credit for stormwater runoff/ballast water allocation (daily & monthly) for its discharge, it must use the method described in the attached Form A (Attachment H). To receive such credits, Form A must be submitted with the monthly self-monitoring report and the daily maximum allocation for each day outfall 001 is monitored must be computed.

   Ballast water treated and discharged as part of outfall 001 shall be metered and the volume recorded in the attached Form A for each calendar year. The 30-day average shall be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.1b of this permit.

Attachment F – Fact Sheet – Table of Contents

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

Table 1F – Administrative Information for the Facility.

WDID	**2 071044001**
Discharger	**Chevron U.S.A. INC., Richmond Refinery Chevron Chemical Company LLC, Richmond Plant, and General Chemical Corporation, Richmond Works**
Name of Facility	**Richmond Refinery**
Facility Address	**841 Chevron Way**
	Richmond, CA 94801
	Contra Costa County
Facility Contact, Title and Phone	**J.G. Whiteside, General Manager, (510) 242-4400**
Authorized Person to Sign and Submit Reports	**J.G. Whiteside**
Mailing Address	**Same**
Billing Address	**Same**
Type of Facility	**Refinery**
Major or Minor Facility	**Major**
Threat to Water Quality	**1**
Complexity	**1A**
Pretreatment Program	**No**
Reclamation Requirements	**N/A**
Facility Permitted Flow	**30.6 million gallons per day (E-001 - daily maximum from 2001 to 2005)**
Facility Design Flow	**7.6 million gallons per day (E-001 - 2005 annual average)**
Watershed	**San Francisco Bay**
Receiving Water	**San Pablo Bay**
Receiving Water Type	**Estuarine**

A. Chevron U.S.A., Inc. (hereinafter Discharger) is the owner and operator of the Richmond Refinery (hereinafter Facility). The refinery manufactures a broad range of petroleum products and some petrochemicals. The refinery is classified as an "integrated refinery" as defined by the U.S. Environmental Protection Agency (U.S. EPA) in 40 CFR § 419.50. Therefore, the U.S. EPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to Chevron's discharge

Chevron discharges: treated process wastewater; treated process wastewater containing stormwater; stormwater; and stormwater commingled with steam condensate, firewater, and/or

groundwater (and other minor wastewater streams identified in the permit application) to locations in San Francisco and/or San Pablo Bay.

Chevron Chemical Company LLC operates two facilities in Richmond: the Hensley Street facility and the Castro Street facility. The Chevron Chemical Company LLC Richmond facilities were formerly used in the manufacture and/or formulation of fertilizers and pesticides, and fuel additives. The Hensley Street facility contains a fuel additives blending and terminal operation. Other Hensley Street site activities include operation of the Chevron U.S.A. Inc. Environmental Lab, Chevron U.S.A. Inc. Richmond Refinery training facilities and various warehouses. At the Castro Street facility, Chevron Chemical Company LLC operates a series of surface impoundments and capped waste management units. The area was formerly used to manufacture fertilizers. Both Chevron Chemical Company LLC facilities discharge wastewater (predominantly stormwater) to the City of Richmond systems.

General Chemical Corporation, Richmond Works, manufactures sulfuric acid and oleum, using spent alkylation acid and elemental sulfur as part of its raw materials. General Chemical Corporation discharges its wastewater to the Chevron Richmond Refinery wastewater system for treatment.

Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation are hereinafter collectively referred to as the Discharger.

B. The Facility discharges wastewater to San Pablo Bay, a water of the United States and is currently regulated by Order No. 01-067, which was adopted on June 20, 2001, and expired on May 31, 2006. Pursuant to the correspondence received from the Regional Water Board on March 29, 2006, the terms and conditions of the existing Order were automatically continued in effect after the permit expiration date, and until a new permit is issued.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on November 30. 2005. Supplemental Information was requested on December 29, 2005, and received on March 20, 2006, and March 29, 2006.

II. FACILITY DESCRIPTION

A. Description of Wastewater Treatment or Controls

1. **Wastewater Sources and Conveyance.** The Chevron Richmond Refinery wastewater treatment system consists of an extensive network of drains, trunklines, separators, and treatment areas servicing numerous plant areas throughout the refinery. Process water enters the wastewater treatment system from many sources including process units, cooling water tower facilities and blowdown, fresh water treatment facilities (reverse osmosis plant), steam and electrical generation facilities, steam distribution systems, fire protection and safety systems, laboratories, and the General Chemical Richmond Works facility, as well as the recovered oil system, and groundwater extraction systems. The average dry season flow is about 6.8 mgd, with wet season flows in excess of 20 mgd with the introduction of processed stormwater.

2. **Wastewater Treatment Units.** Process water is initially treated in one of three API separators (each servicing a distinct area of the refinery). From the API separators, the Discharger routes wastewater to an aggressive biological treatment unit (ABTU) that consists of four quadrants. The first two quadrants provide biological treatment through aeration, while the next two quadrants are used as settling basins. The residence time of the ABTU is between 5 and 14 days. Treated wastewater from the ABTU may be routed to the Richmond Refinery Enhancement Wetland, which is maintained as an adjunct effluent treatment process. The remaining bioreactor effluent, and typically all wetland effluent is routed through a granular activated carbon (GAC) facility that consists of 24 GAC vessels on 12 skids that may be operated in series (normal operation) or parallel (high flow conditions). The GAC facility serves to remove aquatic toxicity from treated wastewater, as well as to provide additional removal of metals and hydrocarbons. Effluent is then routed to a compliance sampling station (E-001), and onward to San Pablo Bay. The discharge point is through a deepwater diffuser (average depth of 30 to 50 feet), approximately 2,000 feet offshore to the north of Point San Pablo. The Discharger has the option to discharge a portion of wetland effluent directly to outfall 001 (downstream of the GAC facility) provided wetland effluent discharges do not exceed a daily maximum of 3 mgd, and wetland effluent does not cause acute toxicity.

3. **Description of Stormwater Outfalls**

   a. **Discharge Point E-002 (Richmond Long Wharf).** This discharge consists of biologically-treated wastewater drawn from the wastewater treatment system (refer to description of Waste 001). Richmond Long Wharf discharges may also consist of bay water. These routine discharges occur during tests of (or maintenance on) the fire protection system.

   b. **Discharge Point E-003 (North Yard Impoundment Basin).** This discharge consists of stormwater commingled with steam condensate, groundwater seepage, and water from fire protection systems. North Yard Impound Basin is a containment basin formerly used in wastewater treatment. Runoff originates from an area of approximately 341 acres from areas within the: Poleyard and Alkane Tankfields and adjacent hill sides; LPG and Ammonia Storage Facilities; Cracking and Hydroprocessing facilities; Petrochemical facilities; FCC, RLOP, Isomax, MTBE/TAME cooling water towers; Hydrogen Plant; former Alkane and HF Plant areas; Sulfur Recovery Unit and sulfur sales facilities; and Hydropits Cap. The North Yard Impound Basin discharges may contain Waste 008 and discharges to Castro Creek. Castro Creek flows into San Pablo Bay.

   c. **Discharge Point E-004 (12-Basin).** This discharge consists of stormwater runoff from an area of approximately 3 acres in the former Point Orient Tankfield. 12-Basin discharges to San Francisco Bay. 12-Basin may also be transferred to the 10-Basin and discharged at E-006 as part of Waste 006.

   d. **Discharge Point E-005 (11-Basin).** This discharge consists of stormwater runoff from an area of approximately 4 acres located in a former Point Orient Tankfield area. Waste 005 discharges into San Francisco Bay at outfall location E-005.

e. **Discharge Point E-006 (10-Basin).** This discharge consists of stormwater runoff from an area of approximately 48 acres located in a former Point Orient Tankfield area. Waste 006 may also contain stormwater runoff from the 12-Basin area, an area of approximately 3 acres. In addition, it may contain stormwater runoff from the Horse Pasture area (refer to Waste 007), an area of approximately 17 acres. Waste 006 discharges into San Francisco Bay at outfall location E-006.

f. **Discharge Point E-007 (Horse Pasture, Basin 13).** This discharge consists of stormwater runoff from an area of approximately 17 acres located in a former Point Orient Tankfield area. Waste 007 discharges into San Francisco Bay at outfall location E-007.

g. **Discharge Point E-008 (Tank Field).** This discharge consists of stormwater runoff commingled with steam condensate, groundwater seepage, and water from the fire protection systems. Runoff originates from an area of approximately 496 acres in and around the Main Tankfield, Distillation and Reforming facilities, Main and South Yard areas, rail car loading areas, Asphalt Plant, and Cogeneration Facility. Waste 008 discharges into San Pablo Bay at outfall location E-008, or is transferred to the North Yard Impound Basin for discharge as part of the North Yard Impound Basin discharge (E-003).

h. **Discharge Point E-009 (8-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 26 acres within the Quarry Tankfield. Waste 009 discharges into San Francisco Bay at outfall location E-009.

i. **Discharge Point E-010 (Reclamation Area).** This discharge consists of stormwater runoff from an area of approximately 6 acres which is a portion of the Reclamation Yard area. Waste 010 discharges into Wildcat Creek via the Gertrude Street Ditch, which then drains to Castro Creek and San Pablo Bay. The discharge of Waste 010 is monitored at outfall E-010.

j. **Discharge Point E-011 (Chevron Chemical Company Plant Runoff).** This discharge consists of stormwater runoff commingled with groundwater (both seepage and extracted from various subsurface hydraulic containment systems), steam condensate, and potable water used in the facility's fire protection systems and facility washdown. Runoff originates from an area of approximately 28.4 acres from areas within the Chevron Chemical Company LLC Hensley Street facility. Waste 011 is collected in the Castro Acres surge pond (located along the east side of Castro Street) prior to being pumped into sections of Chevron Chemical Company LLC's Integrated Wastewater Pond System (IWPS) or it can be pumped directly to the IWPS, located at the Castro Street facility.

Waste 011, which is collected in the Castro Acres surge pond, is not permitted to discharge to surface waters under typical rainfall conditions as it may contain trace contaminants. Typically, Waste 011 is discharged to the IWPS, which provides necessary surge capacity before discharge to the City of Richmond sanitary sewer system (POTW). However, during periods of high intensity rainfall (in excess of a 25-year, 24-hour rainfall event), Waste 011 may be discharged from the Castro Acres surge pond into

Castro Creek via a drainage ditch on the east side of Castro Street, identified as Outfall E-011.

k. **Discharge Point E-012 (Fertilizer Evaporation Pond).** This discharge used to consist of stormwater runoff commingled with groundwater (both seepage and extracted from various subsurface hydraulic containment systems), steam condensate, and potable water used in the facility's fire protection systems and for facility washdown. Runoff originated from an area of approximately 19 acres within the Chevron Chemical Company LLC's Castro Street facility which was formerly used to manufacture fertilizer. Waste 012 used to collect in evaporation ponds located along the west side of Castro Street.

In July 2002, the Discharger filled this evaporation pond. Runoff from this area is now routed to the City of Richmond's Wastewater Treatment Plant.

l. **Discharge Point E-013 (Integrated Wastewater Pond System).** This discharge consists of stormwater runoff from direct rainfall onto sections of Chevron Chemical Company LLC's Integrated Wastewater Pond System (IWPS), an area of approximately 81 acres of synthetically lined surface impoundments. This accumulated rainfall is designated Waste 013. Depending on annual precipitation, various sections of the IWPS receive Waste 011 and may receive Waste 012. When this occurs, these sections are no longer considered as solely containing Waste 013 and accumulated water is discharged to the City of Richmond's POTW. Waste 013 also contains rainfall runoff from an adjacent 4 acre capped Class II waste management unit (Soil Management Unit No.1). Waste 013 may be discharged into Castro Creek, at a point approximately 1000 feet upstream of its confluence with Wildcat Creek at an outfall identified as E-013.

m. **Discharge Point E-014 (Consolidation Area).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 5 acres. Runoff from the Consolidation Area is discharged to Castro Creek. Castro Creek flows into San Pablo Bay.

n. **Discharge Point E-015 (1-Basin).** This discharge consists of stormwater runoff from an area of approximately 4 acres in a former tankfield area of the Office Hill Tankfield. 1-Basin discharges to San Pablo Bay via the City of Richmond's stormwater management system. This system routes stormwater from storm sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel which discharges into Castro Creek. The Discharger's Report of Waste Discharge shows the location where the 1-Basin discharges into the stormwater management system.

o. **Discharge Point E-016 (2-Basin).** This discharge consists of stormwater runoff from an area of approximately 5 acres in a former tankfield area of the Office Hill Tankfield. 2-Basin discharges to San Pablo Bay via the City of Richmond's stormwater management system. This system routes water from storm-sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel which discharges into Castro Creek. The Discharger's Report of Waste Discharge shows the location where the 2-Basin discharges into the stormwater management system.

p. **Discharge Point E-017 (3-Basin).** This discharge (including 3A Basin discharge) consists of stormwater runoff from an area of approximately 7 acres in a former tankfield area of the Office Hill Tankfield. 3-Basin discharges into San Francisco Bay.

q. **Discharge Point E-018 (9-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 29 acres in the Quarry Tankfield. 9-Basin discharges to San Francisco Bay.

r. **Discharge Point E-019 (7-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 20 acres in the SP Hill Tankfield. 7-Basin discharges into San Francisco Bay.

s. **Discharge Point E-020 (Castro Street).** This discharge consists of stormwater runoff from the City of Richmond's stormwater management system. This system drains an area of approximately 260 acres, and routes water from City of Richmond storm sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel, which discharges into Castro Creek which flows to San Pablo Bay. Castro Street discharges may also contain 1-Basin and 2-Basin discharges.

t. **Discharge Point E-021 (Landfill 15).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 41 acres. Runoff from Landfill 15 discharges to Castro Creek, which flows to San Pablo Bay.

u. **Discharge Point E-022 (Parr-Richmond).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 7 acres. Runoff from the Parr-Richmond Site discharges to Wildcat Creek and Gertrude Street ditch (which drains to Wildcat Creek). Wildcat Creek drains to Castro Creek, which flows to San Pablo Bay.

v. **Discharge Point E-023 (Gertrude Street).** This discharge consists of biologically-treated wastewater drawn from the wastewater treatment system (refer to description of Waste 001). Richmond Long Wharf discharges may also consist of bay water. These routine discharges occur during tests of (or maintenance on) the fire protection system.

B. Discharge Points and Receiving Waters

The location of the deepwater diffuser (E-001), and stormwater outfalls are shown in the table below:

Table 2F: Outfall Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated wastewater	37 °, 58', 15" N	122 °, 25', 45" W	San Pablo Bay
002	Firewater Testing	37 °, 55', 15" N	122 °, 24', 30" W	San Francisco Bay
003	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
004	Stormwater	37 °, 57', 15" N	122 °, 24', 45" W	San Francisco Bay
005	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
006	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
007	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
008	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
009	Stormwater	37 °, 56', 00" N	122 °, 24', 15" W	San Francisco Bay
010	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
011	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Creek to San Pablo Bay
012	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Does not discharge
013	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
014	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
015	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
016	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
017	Stormwater	37 °, 55', 45" N	122 °, 24', 30" W	San Francisco Bay
018	Stormwater	37 °, 55', 45" N	122 °, 24', 00" W	San Francisco Bay
019	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
020	Stormwater	37 °, 57', 15" N	122 °, 23', 15" W	Castro Street to San Pablo Bay
021	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Street to San Pablo Bay
022	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
023	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the previous permit (Order No. 01-067) for discharges from Chevron's wastewater treatment system (Monitoring Location E-001), and representative monitoring data from the term of the previous Order are as follows:

1. Effluent Limitations and Monitoring Data for Treated Wastewater (E-001)

The following two tables documents the quality of conventional and toxics pollutants relative to the effluent limitations contained in Order No. 01-067.

a. Table 3F - Historic Conventional Substances Effluent Limitations and Monitoring Data

Parameter (units)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD_5 (lbs/day)	5507		10366	1120		1120
TSS (lbs/day)	4535		7127	1497		1497
TOC (lbs/day)	12094		22783	2618		2618
Oil & Grease (lbs/day)	1728		3239	445		445
Oil & Grease (mg/L)	8		15	8.56		8.56
Phenolic Compounds (lbs/day)	20.66		76	0.68		0.68
Ammonia as N (lbs/day)	2052		4481	342.5		342.5
Sulfide (lbs/day)	30		67	9.9		12.6
Settleable Solids (ml/l-hr)	0.1		0.2	0.1		0.1
Total Chromium (lbs/day)	24		69.08	0.90		0.90
Hexavalent Chromium (lbs/day)	1.98		4.42	0.08		0.08

b. Table 4F - Historic Toxic Substances Effluent Limitations and Monitoring Data

Parameter (µg/L)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Cadmium	11.02		22.11			0.2
Copper	10.96		27.06			6.73
Lead	33.30		66.80			2.68
Zinc	204.08		995.43			50.41
Benzo(a)anthracene	0.480		0.962			<0.1
Benzo(k)fluroanthene	0.474		0.950			<0.3
Benzo(a)pyrene	0.489		0.981			<0.3
Chrysene	0.4816		0.9662			<0.3
Dibenzo(a,h)anthracene	0.4875		0.9780			<0.1
G-BHC	0.62		1.260			<0.01
Heptachlor	0.002		0.0042			<0.01
Hexachlorobenzene	0.007		0.0153			<0.1
Heptachlor Epoxide	0.0007		0.00161			0.1
Indeno(1,2,3-cd)pyrene	0.4766		0.9561			<0.05

Parameter (µg/L)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
PCB-1016	0.00017		0.00034			<0.01
PCB-1221	0.00017		0.00034			<0.01
PCB-1232	0.00017		0.00034			<0.01
PCB-1242	0.00017		0.00034			<0.01
PCB-1248	0.00017		0.00034			<0.01
PCB-1254	0.00017		0.00034			<0.01
PCB-1260	0.00017		0.00034			<0.01
Toxaphene	0.00059		0.00118			<0.05
Mercury	0.075					0.11
Nickel			65			37.8
Selenium			50			22.1
Cyanide			25			4.8
Aldrin			0.001			<0.005
A-BHC			0.13			<0.01
Chlordane			0.0008			<0.02
4,4 DDT			0.0059			<0.01
4,4 DDE			0.0059			<0.01
4,4 DDD			0.0059			<0.01
Dieldrin			0.001			<0.01
Alpha-endosulfan			0.087			<0.01
Beta-endosulfan			0.087			<0.01
Endrin			0.02			<0.01
TCDD Equivalents (pg/L)			0.1			Nondetect

2. Historic Stormwater Data from Outfalls E-002 to E-023

The following tables include the quality of stormwater runoff from November 2002 through June 2005. During this period, Chevron did not discharge to San Pablo or San Francisco Bay from several discharge points, and therefore, summary data is not available for these outfalls.

a. Discharge Point E-002, Richmond Long Wharf

Table 5F – E-002 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.24 (minimum)	8.65
Conductivity (µmhos/cm)	4565	32200
Total Suspended Solids (mg/L)	22	68
Total Organic Carbon (mg/L)	16	27
Oil and Grease (mg/L)	<3.0 (median)	31.8

[1] These results are based on 33 samples that Chevron collected from 2003 through 2005. As this is a controlled discharge, Chevron evaluates samples for compliance with stormwater limitations prior to discharging. The daily maximum values shown for oil and grease and pH did not violate

the limitations of Order No. 01-067 because Chevron did not discharge this water to San Francisco Bay.

b. Discharge Point E-003, North Yard Impoundment Basin

Table 6F – E-003 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.2 (minimum)	7.2
Conductivity (µmhos/cm)	651	651
Total Suspended Solids (mg/L)	102	102
Total Organic Carbon (mg/L)	8.4	8.4
Oil and Grease (mg/L)	<3.0	<3.0

[1] These results are based on one sample that Chevron collected in December 2004.

c-f. Discharge Points E-004-E-007 (10-13-Basins) – These basins are located on the westside of the San Pablo Peninsula ridge. In this area, Chevron indicates that all tanks associated with operations were dismantled, and that all operations ceased by 1996. Order No. 01-067 required that Chevron collect two sample s during the first wet season, and since these samples showed compliance with effluent limitations, no further samples were required. As such, this Order no longer includes stormwater monitoring requirements for these basins.

g. Discharge Point E-008, Tank Field – No Discharge

h. Discharge Point E-009, 8 Basin

Table 7F – E-009 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	8.1 (minimum)	8.1
Conductivity (µmhos/cm)	705	705
Total Suspended Solids (mg/L)	<9.0	<9.0
Total Organic Carbon (mg/L)	5.6	5.6
Oil and Grease (mg/L)	<3.0	<3.0

[1] These results are based on one sample that Chevron collected in March2004.

i. Discharge Point E-010, Reclamation Area

Table 8F – E-010 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.7 (minimum)	8.5
Conductivity (µmhos/cm)	593	4290
Total Suspended Solids (mg/L)	74	216
Total Organic Carbon (mg/L)	5.8	12.6
Oil and Grease (mg/L)	<3.0 (median)	4.2

[1] These results are based on 11 samples that Chevron collected from December 2002 through April 2005.

j. Discharge Point E-011, Chevron Chemical Company Plant Runoff – No Discharge

k. Discharge Point E-012, Fertilizer Evaporation Pond – No Discharge

l. Discharge Point E-013, Integrated Wastewater Pond System – No Discharge

m. Discharge Point E-014, Consolidation Area

Table 9F – E-014 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	6.75 (minimum)	8.35
Conductivity (µmhos/cm)	580	1030
Total Suspended Solids (mg/L)	12.8	41.3
Total Organic Carbon (mg/L)	18.9	59.9
Oil and Grease (mg/L)	<3.0 (median)	7.7

[1] These results are based on 18 samples that Chevron collected from December 2002 through June 2005.

n. Discharge Point E-015, 1-Basin – No Discharge

o. Discharge Point E-016, 2-Basin – No Discharge

p. Discharge Point E-017, 3-Basin

Table 10F – E-017 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.0 (minimum)	7.7
Conductivity (µmhos/cm)	196	236
Total Suspended Solids (mg/L)	12.3	23.5
Total Organic Carbon (mg/L)	15.5	23.1
Oil and Grease (mg/L)	<3.0 (median)	4.01

[1] These results are based on 4 samples that Chevron collected from December 2002 through April 2005.

q. Discharge Point E-018, 9-Basin

Table 11F – E-018 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	8.01 (minimum)	8.42
Conductivity (µmhos/cm)	555	580
Total Suspended Solids (mg/L)	2.8 to <9.0	2.8
Total Organic Carbon (mg/L)	7.4	8.2
Oil and Grease (mg/L)	<3.0	<3.0

[1] These results are based on 2 samples that Chevron collected in March 2004.

r. Discharge Point E-019, 7-Basin – No discharge

s. Discharge Point E-020, Castro Street

Table 12F – E-020 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.3 (minimum)	8.5
Conductivity (µmhos/cm)	2830	9830
Total Suspended Solids (mg/L)	32	112
Total Organic Carbon (mg/L)	8.7	17.3
Oil and Grease (mg/L)	<3.0 (median)	9.98

[1] These results are based on 16 samples that Chevron collected from November 2002 through April 2005.

t. Discharge Point E-021, Landfill 15

Table 13F – E-021 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.55 (minimum)	8.1
Conductivity (µmhos/cm)	293	719
Total Suspended Solids (mg/L)	11.3	43.5
Total Organic Carbon (mg/L)	9.8	48.7
Oil and Grease (mg/L)	<3.0 (median)	3.94

[1] These results are based on 16 samples that Chevron collected from November 2002 through April 2005.

u. Discharge Point E-022, Parr-Richmond

Table 14F – E-022 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.6 (minimum)	9.1
Conductivity (µmhos/cm)	55	83
Total Suspended Solids (mg/L)	6.5	26
Total Organic Carbon (mg/L)	<1.7 (median)	6.0
Oil and Grease (mg/L)	<3.0 (median)	7.57

[1] These results are based on 12 samples that Chevron collected from December 2002 through March 2005.

v. Discharge Point E-023, Gertrude Street

Table 15F – E-023 Monitoring Data

Parameter	Average	Daily Maximum [1]
pH, standard units	7.3 (minimum)	8.12
Conductivity (µmhos/cm)	183	535
Total Suspended Solids (mg/L)	14.3	61
Total Organic Carbon (mg/L)	7.3	36.9
Oil and Grease (mg/L)	<3.0 (median)	5.98

[1] These results are based on 14 samples that Chevron collected from November 2002 through April 2005.

D. Compliance Summary

During the last permit cycle, Chevron violated its permit on several occasions. Pursuant to California Water Code Section 13385, the Water Board, at its February 8, 2006, Board hearing, assessed a penalty of $12,000 for the violations shown below:

Table 16F – Compliance Summary

Item	Date of Violation	Effluent Limitation Described E-001 except where noted	Effluent Limit	Reported Value
1	12/31/01	Mercury, monthly average (µg/L)	0.075	0.094
2	12/14/02	Oil & Grease, daily maximum (mg/L)	15	25.7
3	12/14/02	Oil & Grease, daily loading (lbs/day)	6,474	6,569
4	12/31/02	Mercury, monthly average (µg/L)	0.075	0.106
5	6/30/03	Oil & Grease, monthly average (mg/L)	8.0	8.56
6	12/1/03	pH (Parr-Richmond Site), daily maximum	8.5	8.58
7	5/5/04	Heptachlor Epoxide, daily maximum (µg/L)	0.00161	0.1
8	3/22/05	pH (Parr-Richmond Site), daily maximum	8.5	9.1

[1] Violations one through five and seven are for discharges of treated wastewater to San Pablo Bay, while violations 6 and 8 relate to stormwater discharges from discharge point 022.

E. Planned Changes – The Discharger in its Report of Waste Discharge identified a potential expansion to reclaimed/recycled water use, including development of a high-purity boiler feed water project using EBMUD produced recycled water. This may involve using a 3.5-4.0 mgd reverse osmosis (RO) treatment facility to be constructed on-site to provide supplemental boiler feed water. The RO facility reject water (concentrate) would be discharged to Chevron's wastewater system upstream of the E-001 compliance monitoring point. The source of RO feedwater would initially be West County Wastewater District (WCWD) secondary effluent that complies with all West County Agency NPDES permit requirements. In the future, additional/alternate sources may be used to supplement the RO feed water supply. RO permeate (boiler feed water) production and RO reject disposal would be conducted pursuant to conditions contained in a Water Supply Agreement between EBMUD and Chevron that ensures compliance with all Discharger effluent limits.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Region (Revised in 2005) (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to San Pablo Bay and San Francisco Bay are as follows:

Table 17F – Beneficial Uses of Receiving Waters

Discharge Points	Receiving Water Name	Beneficial Use(s)
001, 003, 008, 010-014, and 020-023	San Pablo Bay	Industrial Service Supply (IND), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)
002, 004-007, 009, and 015-019	San Francisco Bay	Industrial Service Supply (IND), Industrial Process Supply (PRO), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

4. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating water quality-based effluent limitations (WQBELs), and requires Dischargers to submit data sufficient to do so.

5. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State

Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. In this Order, all effluent limitations are at least as stringent as those in the previous Order.

7. **Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 303(d) list), prepared pursuant to provisions of Section 303(d) of the Federal CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. San Pablo Bay is listed as an impaired waterbody. The pollutants impairing San Pablo Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

1. Total Maximum Daily Loads

The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list in San Pablo Bay in the next ten years. Future review of the 303(d)-list for San Pablo Bay may result in revision of the schedules or provide schedules for other pollutants.

2. Waste Load Allocations

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

3. Implementation Strategy

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

a. **Data Collection.** The Regional Water Board has given the dischargers the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including San Pablo Bay.

b. **Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

E. Other Plans, Polices and Regulations – N/A

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations; and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, three options exist to protect water quality: 1) 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge other than that described in this Order).** This prohibition is the same as in the previous permit and is based on California Water Code (CWC) Section 13260 that requires filing of a ROWD before a permit to discharge can be granted. The Discharger submitted a ROWD, dated November 30, 2005, for permission to discharge as specified in this permit, thus any discharges other than as described in this Order are prohibited.

2. **Prohibition III.B (10:1 Dilution).** This prohibition is based on the Basin Plan. The Basin Plan prohibits discharges of wastewater not receiving a minimum dilution of 10:1 (Chapter 4, Discharge Prohibition No. 1).

3. **Prohibition III.C (no bypass or overflow).** This prohibition is based on the previous Order and BPJ.

4. **Prohibition III.D (no discharge unless rainfall yields a 24-hour, 25-year storm).** This prohibition is based on the previous Order and BPJ.

5. **Prohibition III.E (no discharge without Executive Officer approval).** This prohibition is based on the previous Order and BPJ. It is necessary to ensure that only noncontaminated stormwater is discharged from this basin in the case of an extreme storm event.

6. **Prohibition III.F (no discharge of wetland effluent directly to outfall 001).** This prohibition is based on the previous Order.

7. **Prohibition III.G (no discharge of non-segregated ballast water directly to Waters of the State).** This prohibition is based on the previous Order, and would also violate Prohibition III.B, which requires that waste receive an initial dilution of at least 10:1.

B. Technology-Based Effluent Limitations

1. Effluent Limitations A.1a: The refinery is classified as an "integrated refinery" as defined by the USEPA in 40 CFR § 419.50. Therefore, the USEPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to the Discharger.

This section contains production-based mass emission limits for the following constituents: Biochemical oxygen demand (BOD), total suspended solids (TSS), total organic carbon (TOC), oil & grease, phenolic compounds, ammonia (expressed as nitrogen), sulfide, and total and hexavalent chromium based on 40 CFR § 419 Subpart E. The application of these guidelines and standards is based on production rates at the refinery. In calculating currently applicable effluent limitations, Board staff has used the maximum 12-month average of facility production (June 2004 through May 2005) for 2002-2005. A detailed description of the methodology and data used to calculate the technology-based effluent limitations is included in Attachment 1.

This effluent limit for pH is a standard secondary treatment requirement and is unchanged from the existing permit. The limit is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements (40 CFR 133.102). This is an existing permit effluent limitation and compliance has been demonstrated by existing plant performance.

The limits for settleable solids are based on existing limits and the Basin Plan, and the concentration limits for oil and grease are based on existing limits and BPJ. The facility's ability to comply with all of these limits has been demonstrated by existing plant performance

2. Effluent Limitations A.1b: Concentration limits for pollutants contained in storm water and ballast water are based on existing limits, which were developed from the requirements in 40 CFR Part 419.52(e)(2), 419.53(f)(2), and 419.52(c). The Order retains the requirement that the Discharger record storm water and ballast flow on a daily basis and report daily maximum and

monthly average flows. These flows are then used along with the above concentration limits to calculate the mass allowances that are added to the mass limits included in A.1a.

Table 18F - Summary of Technology-based Effluent Limitations
Discharge Point E-001

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Five-day Biochemical Oxygen Demand	lbs/day	5100	9600		
Total Suspended Solids	lbs/day	4200	6600		
Total Organic Carbon	lbs/day	11000	21000		
Oil & Grease	lbs/day	1600	3000		
	mg/L	8	15		
Phenolic Compounds	lbs/day	22	70		
Ammonia as N	lbs/day	1900	4200		
Sulfide	lbs/day	28	62		
Total Chromium	lbs/day	25	72		
Hexavalent Chromium	lbs/day	2.1	4.6		
Settleable Solids	mL/ L-hr	0.1	0.2		
pH[1]	standard units			6.0	9.0

[1] If the Discharger employs continuous pH monitoring , it shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (a) the total time during which the pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month, and (b) no individual excursion from the required range of pH values shall exceed 60 minutes.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

a. As specified in 40 CFR §122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard (Reasonable Potential). The process for determining Reasonable Potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or water quality criteria contained in the CTR and NTR.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs), and Average Monthly Effluent Limitations (AMELs).

1) NPDES Regulations. NPDES regulations at 40 CFR Part 122.45(d) state: "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

2) SIP. The SIP (page 8, section 1.4) requires WQBELs be expressed as MDELs and AMELs.

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan, the USEPA's May 18, 2000 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (the California Toxics Rule, or the CTR), and the USEPA's National Toxics Rule (the NTR).

a. Basin Plan. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c., below). The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

b. CTR. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

c. NTR. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Delta. This includes the receiving water for this Discharger.

d. Technical Support Document for Water Quality-Based Toxics Controls. Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR Part 122.44(d) specifies that WQBELs may be set based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses. Regional Water Board staff used best professional judgment (BPJ) to determine the WQOs, WQCs, WQBELs, and calculations contained in this Order as defined by USEPA's March 1991 Technical Support Document for Water Quality-Based Toxics Control (the TSD).

e. Receiving Water Salinity and Hardness. The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria, (the latter calculated based on ambient hardness), for each substance.

1) Receiving Water Salinity. The receiving water for the subject discharge is San Pablo Bay, which is a tidally influenced waterbody, with significant fresh water inflows during the wet weather season. San Pablo Bay is specifically defined as estuarine under the Basin Plan salinity definition. Therefore, the effluent limitations specified in this Order for discharges to San Pablo Bay are based on the lower of the marine and freshwater Basin Plan WQOs and CTR and NTR WQC.

2) Hardness. Some WQOs and WQC are hardness dependent. Hardness data collected through the RMP are available for water bodies in the San Francisco Bay Region. In determining the WQOs and WQC for this Order, the Board used a hardness of 59 mg/L, which is the minimum hardness at the Pinole Point Station observed from 1993-2001. This represents the best available information for hardness of the receiving water after it has mixed with the discharge.

f. Interim Limitations and Compliance Schedules.

1) Pursuant to Section 2.1.1 of the SIP, "the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the Discharger requests and demonstrates that it is infeasible for the Discharger to achieve immediate compliance with a CTR criterion; and (b) the Discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the Regional Water Board should consider the Discharger's contribution to current loadings and the Discharger's ability to participate in TMDL development." As further described in a finding below, the Discharger has requested and demonstrated that it is infeasible to achieve immediate compliance for mercury. Also, the Discharger has agreed to assist the Regional Water Board in TMDL development through its affiliation with WSPA.

2) The SIP and the Basin Plan authorize compliance schedules in a permit if an existing Discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or the NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs are based on the Basin Plan. Both the SIP and the Basin Plan require the Discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule.

The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:

- Descriptions of diligent efforts the Discharger have made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the 2004 Basin Plan Amendment. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in more stringent limitations.

3) On March 23, 2006, the Discharger submitted a feasibility study (the 2006 Feasibility Study), asserting it is infeasible to immediately comply with the WQBELs, calculated according to SIP Section 1.4, for mercury, selenium, cyanide, PCBs, and TCDD Equivalents. Based on these analyses, the Regional Water Board concurs that it is infeasible to achieve immediate compliance for these pollutants, as discussed later in the Fact Sheet.

3. Determining the Need for WQBELs

Title 40 CFR Part 122.44(d) (1) (i) requires permits to include WQBELs for all pollutants (non-priority or priority) "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard" (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from Discharge Point 001 demonstrates Reasonable Potential as described in Sections 3a through 3h below.

a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from E-001 demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the USEPA, the NTR, and the CTR.

b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable SSOs or WQC.

The RPA identifies the observed MEC in the effluent for each pollutant, based on effluent concentration data. There are three triggers in determining Reasonable Potential:

1) The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC ≥ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B>WQO) and the pollutant was detected in any of the effluent samples.

3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the Regional Water Board's August 6, 2001 Letter) to all permittees, formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical

methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed this effluent data to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from 2003 through 2005.

d. Ambient Background Data

Ambient background values are used in the reasonable potential analysis (RPA) and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been sampled for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants. Not all the constituents listed in the CTR were analyzed by the RMP during this time.

These data gaps are addressed by the Board's August 6, 2001 Letter titled "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy" (hereinafter referred to as the Board's August 6, 2001 Letter—available online; see Standard Language and Other References Available Online, below). The Board's August 6, 2001 Letter formally requires the Dischargers (pursuant to Section 13267 of the California Water Code) to conduct ambient background monitoring and effluent monitoring for those constituents not currently sampled by the RMP and to provide this technical information to the Board.

On May 15, 2003, a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station.

e. RPA Determination

The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used, and Reasonable Potential conclusions from the RPA are listed in the following table for all constituents analyzed. Some of the constituents in the CTR were not determined because of the lack of an objective/criteria or effluent data. Based on the RPA methodology in the SIP, some constituents did not demonstrate Reasonable Potential. The RPA results are shown below and Attachment 2 of this Fact Sheet. The pollutants that exhibit Reasonable Potential are copper, lead, mercury, nickel, selenium, cyanide, TCDD Equivalents, heptachlor epoxide, and total PCBs.

Table 19F – RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
1	Antimony	1.02	4300	1.8	No
2	Arsenic	28.2	36	2.46	No
3	Beryllium	<0.2	No Criteria	0.21	---
4	Cadmium	0.2	1.6	0.13	No
5a	Chromium (III)	2.86	134	Not Available	Cannot Determine
5b	Chromium (VI)	1.44	11.4	4.4	No
6	Copper	6.73	3.7	2.45	**Yes**
7	Lead	2.68	1.6	0.80	**Yes**
8	Mercury	0.11	0.025	0.0086	**Yes**
9	Nickel	37.8	8.3	3.7	**Yes**
10	Selenium	22.1	5.0	0.39	**Yes**
11	Silver	<0.5	1.07	0.052	No
12	Thallium	1.46	6.3	0.21	No
13	Zinc	50.41	77	5.1	No
14	Cyanide	4.8	1.0	<0.40	**Yes**
15	Asbestos	Not Available	No Criteria	Not Available	---
16	2,3,7,8-TCDD (Dioxin)	Nondetect	0.000000014	$7.1*10^{-8}$	**Yes**
17	Acrolein	<0.5	780	<0.50	No
18	Acrylonitrile	<2	0.66	0.030	Cannot Determine
19	Benzene	<0.5	71	<0.050	No
20	Bromoform	<0.5	360	<0.50	No
21	Carbon Tetrachloride	<0.5	4.4	0.060	No
22	Chlorobenzene	<0.5	21000	<0.50	No
23	Chlorodibromomethane	<0.5	34	<0.050	No
24	Chloroethane	<0.5	No Criteria	<0.50	---
25	2-Chloroethylvinyl Ether	<0.5	No Criteria	<0.50	---
26	Chloroform	0.9	No Criteria	<0.05	---
27	Dichlorobromomethane	<0.5	46	<0.05	No
28	1,1-Dichloroethane	<0.5	No Criteria	<0.05	---
29	1,2-Dichloroethane	<0.6	99	0.040	No
30	1,1-Dichloroethylene	<0.5	3.2	<0.50	No
31	1,2-Dichloropropane	<0.5	39	<0.050	No
32	1,3-Dichloropropylene	<0.5	1700	Not Available	Cannot Determine
33	Ethylbenzene	<0.5	29000	<0.50	No
34	Methyl Bromide	<0.5	4000	<0.50	No
35	Methyl Chloride	<0.5	No Criteria	<0.50	---
36	Methylene Chloride	2	1600	0.50	No
37	1,1,2,2-Tetrachloroethane	<0.5	11	<0.050	No
38	Tetrachloroethylene	0.5	8.85	<0.050	No
39	Toluene	<0.5	200000	<0.30	No
40	1,2-Trans-Dichloroethylene	<0.5	140000	<0.50	No
41	1,1,1-Trichloroethane	<0.5	No Criteria	<0.50	---
42	1,1,2-Trichloroethane	<0.5	42	<0.050	No
43	Trichloroethylene	<0.5	81	<0.50	No
44	Vinyl Chloride	<0.5	525	<0.50	No
45	2-Chlorophenol	<2	400	<1.2	No
46	2,4-Dichlorophenol	<1	790	<1.3	No
47	2,4-Dimethylphenol	<2	2300	<1.3	No
48	2-Methyl-4,6-Dinitrophenol	<5	765	<1.2	No
49	2,4-Dinitrophenol	<5	14000	<0.70	No
50	2-Nitrophenol	<5	No Criteria	<1.3	---
51	4-Nitrophenol	<5	No Criteria	<1.6	---
52	3-Methyl-4-Chlorophenol	<1	No Criteria	<1.1	---
53	Pentachlorophenol	<1	7.9	<1.0	No
54	Phenol	<1	4600000	<1.3	No
55	2,4,6-Trichlorophenol	5	6.5	<1.3	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
56	Acenaphthene	<0.3	2700	0.0015	No
57	Acenaphthylene	<0.2	No Criteria	0.00053	---
58	Anthracene	<0.3	110000	0.00050	No
59	Benzidine	<5	0.00054	<0.0015	Cannot Determine
60	Benzo(a)Anthracene	<0.1	0.049	0.0053	Cannot Determine
61	Benzo(a)Pyrene	<0.3	0.049	0.00029	Cannot Determine
62	Benzo(b)Fluoranthene	<0.3	0.049	0.0046	Cannot Determine
63	Benzo(ghi)Perylene	<0.3	No Criteria	0.0027	---
64	Benzo(k)Fluoranthene	<0.3	0.049	0.0015	Cannot Determine
65	Bis(2-Chloroethoxy)Methane	<0.2	No Criteria	<0.30	---
66	Bis(2-Chloroethyl)Ether	<1	1.4	<0.30	No
67	Bis(2-Chloroisopropyl)Ether	<2	170000	Not Available	Cannot Determine
68	Bis(2-Ethylhexyl)Phthalate	<1	5.9	<0.5	No
69	4-Bromophenyl Phenyl Ether	<5	No Criteria	<0.23	---
70	Butylbenzyl Phthalate	<2	5200	<0.52	No
71	2-Chloronaphthalene	<2	4300	<0.30	No
72	4-Chlorophenyl Phenyl Ether	<5	No Criteria	<0.30	---
73	Chrysene	<0.3	0.049	0.0024	Cannot Determine
74	Dibenzo(a,h)Anthracene	<0.1	0.049	0.00064	Cannot Determine
75	1,2 Dichlorobenzene	Not Available	17000	<0.80	Cannot Determine
76	1,3 Dichlorobenzene	<0.5	2600	<0.80	No
77	1,4 Dichlorobenzene	<0.5	2600	<0.80	No
78	3,3-Dichlorobenzidine	<5	0.077	<0.0010	Cannot Determine
79	Diethyl Phthalate	<2	120000	<0.24	No
80	Dimethyl Phthalate	<2	2900000	<0.24	No
81	Di-n-Butyl Phthalate	<5	12000	<0.5	No
82	2,4-Dinitrotoluene	<5	9.1	<0.27	No
83	2,6-Dinitrotoluene	<5	No Criteria	<0.29	---
84	Di-n-Octyl Phthalate	<5	No Criteria	<0.38	---
85	1,2-Diphenylhydrazine	<1	0.54	0.0037	Cannot Determine
86	Fluoranthene	<0.05	370	0.011	No
87	Fluorene	<0.1	14000	0.0021	No
88	Hexachlorobenzene	<0.1	0.00077	0.000022	Cannot Determine
89	Hexachlorobutadiene	<1	50	<0.30	No
90	Hexachlorocyclopentadiene	<5	17000	<0.31	No
91	Hexachloroethane	<1	8.9	<0.20	No
92	Indeno(1,2,3-cd) Pyrene	<0.05	0.049	0.0040	Cannot Determine
93	Isophorone	<1	600	<0.30	No
94	Naphthalene	<0.2	No Criteria	0.0023	---
95	Nitrobenzene	<1	1900	<0.25	No
96	N-Nitrosodimethylamine	<1	8.1	<0.30	No
97	N-Nitrosodi-n-Propylamine	<5	1.4	<0.0010	Cannot Determine
98	N-Nitrosodiphenylamine	<1	16	<0.001	No
99	Phenanthrene	<0.05	No Criteria	0.0061	---
100	Pyrene	<0.05	11000	0.0051	No
101	1,2,4-Trichlorobenzene	<0.5	No Criteria	<0.30	---
102	Aldrin	<0.005	0.00014	Not Available	Cannot Determine
103	alpha-BHC	<0.01	0.013	0.00050	No
104	beta-BHC	<0.005	0.046	0.00041	No
105	Gamma-BHC	<0.001	0.063	0.0007	No
106	delta-BHC	<0.01	No Criteria	0.000042	---
107	Chlordane	<0.02	0.00059	0.00018	Cannot Determine
108	4,4'-DDT	<0.01	0.00059	0.000066	Cannot Determine
109	4,4'-DDE	<0.01	0.00059	0.000693	Cannot Determine
110	4,4'-DDD	<0.01	0.00084	0.000313	Cannot Determine
111	Dieldrin	<0.01	0.00014	0.000264	Cannot Determine

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
112	alpha-Endosulfan	<0.01	0.0087	0.000031	Cannot Determine
113	beta-Endosulfan	<0.01	0.0087	0.000069	Cannot Determine
114	Endosulfan Sulfate	<0.01	240	0.000082	No
115	Endrin	<0.01	0.0023	0.000036	Cannot Determine
116	Endrin Aldehyde	<0.01	0.81	Not Available	Cannot Determine
117	Heptachlor	<0.01	0.00021	0.000019	Cannot Determine
118	Heptachlor Epoxide	0.1	0.00011	0.000094	**Yes**
119-125	PCBs (sum)	0.00651	0.00017	Not Available	**Yes**
126	Toxaphene	<0.05	0.00020	0.000050	Cannot Determine
	Total PAHs	<0.1	15	0.026	No

[a] The Maximum Effluent Concentration (MEC) or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level.

[b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[c] RPA Results = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected;
= No, if MEC and B are < WQO/WQC or if all effluent data are undetected below the lowest criterion or objective;
= Blank, if no criteria have been promulgated;
= Cannot Determine, if there are insufficient data, or if the effluent data are undetected at levels above the lowest criterion or objective.

f. Pollutants that no Longer Trigger Reasonable Potential.

(1) Polynuclear Aromatic Hydrocarbons (PAHs). The RPA was conducted on individual and total PAHs, as required by the SIP, CTR, and Basin Plan. No PAHs have been detected in the effluent. However, the detection levels achieved by the Discharger are above the applicable WQC. While the previous Order included limits for benzo(a)anthracene, benzo(k)fluroanthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, this Order does not find that reasonable potential exists for total or individual PAHs. This finding is consistent with State Water Resources Control Board Order WQO 2002-0011 (i.e., there is not sufficient evidence to suggest that these pollutants have the potential to exhibit reasonable potential even though detection limits are above the WQC).

(2) Cadmium, Zinc, alpha-BHC, and gamma-BHC. The previous Order contained effluent limits for these pollutants. As indicated above, these constituents do not have a reasonable potential to cause an exceedance of their respective WQC. Accordingly, this Order does not propose to include effluent limitations for these constituents.

(3) Hexachlorobenzene, Aldrin, Chlordane, 4,4 DDT, 4,4 DDE, 4,4 DDD, Dieldrin, alpha-Endosulfan, beta-Endosulfan, Endrin, Heptachlor, and Toxaphene: The previous Order contained effluent limits for these pollutants. As indicated in above, it was not possible to determine whether these constituents have reasonable potential to cause an exceedance of their respective WQC because detection limits were too high. In order to be consistent with State Water Resources Control Board Order WQO 2002-0011, this Order does not include effluent limits for these pollutants (i.e., there is not sufficient evidence to suggest that these pollutants have the potential to exhibit reasonable potential even though detection limits are above the WQC).

4. Dilution and Assimilative Capacity

a. Dilution. Based on a study entitled *In-Situ Measurement of Dilution of Chevron Effluent in San Pablo Bay*, dated November 1987, and prepared by CH2M Hill, the Discharger indicates that the diffuser achieves a probable minimum initial dilution of 200:1. To address uncertainties with mixing (discussed below) and to protect beneficial uses of the San Pablo Bay, this Order limits the dilution credit for Waste 001 for nonbioaccumulative constituents to 10:1

The Board believes a conservative 10:1 dilution credit for discharges of non-bioaccumulative pollutants to San Francisco Bay is necessary for protection of beneficial uses. The basis for limiting the dilution credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for limiting the dilution credit:

(1) A far-field background station is appropriate because the San Francisco Bay watershed, including the receiving waters, is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs.
(2) Due to the complex hydrology of the San Francisco Bay watershed, a mixing zone cannot be accurately established.
(3) Previous dilution studies do not fully account for the cumulative effects of other wastewater discharges to the system.
(4) The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper and nickel).

The main justification for limiting dilution credit is uncertainty in accurately determining ambient background and uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges. The basis for using 10:1 is that it was granted in the previous permit. This 10:1 limit is also based on the Basin Plan's prohibition number 1, which prohibits discharges like Waste 001 with less than 10:1. The following gives more detailed rational

(1) Complex Estuarine System Necessitates Far-Field Background - The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

With this in mind, the Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the RMP. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Board Staff believe that data from this station are representative of water that will mix with the discharge from Outfalls E-001. Although this station is located near the Golden Gate, it would represent the typical water flushing in and out in the Bay Area each tidal cycle. For most of the Bay Area, the waters represented by this station make up a large part of the receiving water that will mix with the discharge.

(2) Uncertainties Prevent Accurate Mixing Zones in Complex Estuarine Systems - There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used by dischargers to predict dilution have not considered the three-

dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water outflows. Saltwater is heavier than fresh water. Colder saltwater from the ocean flushes in twice a day generally under the warmer fresh river waters that flow out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo Bay, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to the Bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a discharger's diffuser.

(3) Dye studies do not account for cumulative effects from other discharges - The tracer and dye studies conducted are often not long enough in duration to fully assess the long residence time of a portion of the discharge that is not flushed out of the system. In other words, some of the discharge, albeit a small portion, makes up part of the dilution water. So unless the dye studies are of long enough duration, the diluting effect on the dye measures only the initial dilution with "clean" dilution water rather than the actual dilution with "clean" dilution water plus some amount of original discharge that resides in the system. Furthermore, both models and dye studies that have been conducted have not considered the effects of discharges from other nearby discharge sources, nor the cumulative effect of discharges from over 20 other major dischargers to San Francisco Bay system. While it can be argued the effects from other discharges are accounted for by factoring in the local background concentration in calculating the limitations, accurate characterization of local background levels are also subject to uncertainties resulting from the interaction of tidal flushing and seasonal fresh water outflows described above.

4) Mixing Zone Is Further Limited for Persistent Pollutants - Discharges to the Bay Area waters are not completely-mixed discharges as defined by the SIP. Thus, the dilution credit should be determined using site-specific information for incompletely-mixed discharges. The SIP in section 1.4.2.2 specifies that the Regional Board "significantly limit a mixing zone and dilution credit as necessary… For example, in determining the extent of a mixing zone or dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are … persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g., copper, lead, nickel, silver, and zinc). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations.

b. Assimilative Capacity. In response to the SWRCB's Order No. 2001-06, Board staff has evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants for which the Discharger has reasonable potential in its discharges. The evaluation included a review of RMP data (local and Central Bay stations), effluent data, and WQOs/WQC. From this evaluation, it is determined that the assimilative capacity is highly variable due to the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis…"

For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The Board placed selenium, mercury, and PCBs on the CWA Section 303(d) list. The USEPA added dioxins and furans compounds on the CWA Section 303(d) list. Dilution credit is not included for the following pollutants: mercury, selenium, PCBs, and dioxins and furans. The following factors suggest that there is no more assimilative capacity in the Bay for these pollutants.

(1) San Francisco Bay fish tissue data shows that these pollutants, except for selenium, exceed screening levels. The fish tissue data are contained in "Contaminant Concentrations in Fish from San Francisco Bay 1997" May 1997. Denial of dilution credits for these pollutants is further justified by fish advisories to the San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, "Contaminated Levels in Fish Tissue from San Francisco Bay." The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the bay in December 1994. This interim consumption advice was issued and is still in effect due to health concerns based on exposure to sport fish from the bay contaminated with mercury, PCBs, dioxins, and pesticides.

(2) For selenium, the denial of dilution credits is based on Bay waterfowl tissue data presented in the California Department of Fish and Game's Selenium Verification Study (1986-1990). These data show elevated levels of selenium in the livers of waterfowl that feed on bottom dwelling organisms such as clams. Additionally, in 1987 the Office of Environmental Health Hazard Assessment issued an advisory for the consumption of two species of diving ducks in the north bay found to have high tissue levels of selenium. This advisory is still in effect.

5. WQBEL Calculations

WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential is discussed below:

a. Copper

i. *Copper WQC.* The saltwater criteria for copper in the adopted CTR are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protection. Included in the CTR are translator values to convert the dissolved criteria to total criteria. The Discharger may also perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1, and the June 1996 USEPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion,* describe this process and provide guidance on how to establish a site-specific translator. Using the CTR translator, translated criteria of 3.7 µg/L for chronic protection and 5.8 µg/L for acute protection were used to calculate effluent limitations.

ii. *RPA Results.* This Order establishes effluent limitations for copper because the 6.7 µg/L MEC exceeds the governing WQC of 3.7 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *Water Quality Based Effluent Limitations.* The copper WQBELs calculated according to SIP procedures are 25 µg/L as the MDEL, and 13 µg/L as the AMEL.

iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, all effluent copper concentrations were below the 13 µg/L AMEL (range from 0.64 µg/L to 6.7 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final WQBELs for copper.

v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied because the calculated WQBELs are statistically as stringent as the previous permit. Though the previous limit included an AMEL of 10.96, it also included a MDEL of 27.06. The pair of AMEL/MDEL in this Order of 13 and 25 is statistically as stringent because the same SIP methodology was followed in calculating WQBELS, and could be more stringent because the MDEL is more stringent than the previous permit MDEL.

b. Lead

i. *Lead WQOs.* The Basin Plan contains freshwater WQOs for lead 1.6 µg/L as a four-day average, and 42 µg/L as a 1-hour average, as calculated using the receiving water hardness value of 59 mg/L, as $CaCO_3$.

ii. *RPA Results.* This Order establishes effluent limitations for lead because the 2.7 µg/L MEC exceeds the governing WQO of 1.6 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *WQBELs.* The lead WQBELs calculated according to SIP procedures are 15 µg/L as the MDEL and 7.4 µg/L as the AMEL.

iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, all effluent lead concentrations were below the 7.4 µg/L AMEL (range from 0.68 µg/L to 2.7 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final WQBELs for lead.

v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the final WQBEL is more stringent than the previous permit limit.

c. Mercury

i. *Mercury WQOs/WQC.* Both the Basin Plan and the CTR include objectives and criteria that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of aquatic life of 0.025 µg/L as a 4-day average and 2.1 µg/L as a 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.

ii. *RPA Results.* This Order establishes effluent limitations for mercury because the 0.11 µg/L MEC exceeds the governing WQO of 0.025 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *WQBELs.* The mercury WQBELs calculated according to SIP procedures are 0.046 µg/L as the MDEL and 0.017 µg/L as the AMEL.

iv. *Immediate Compliance Infeasible.* The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with the mercury WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for mercury.

v. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the mercury WQBELs, an interim limitation is required. In light of the similarities between refineries regarding the nature of their process wastes and treatment technologies involved, in 2001 Board staff pooled ultraclean mercury data from the refineries to enable a statistical approach to setting an interim limit based on best available information and performance. Statistical analysis from this pooled data set results in an interim performance-based monthly average mercury effluent limit of 0.075 µg/L that is applicable to refinery discharges. This interim limit is carried over from the previous permit.

vi. *Interim Mercury Mass Emission Limitation.* In addition to the concentration-based mercury IPBEL, this Order includes an interim 12-month moving average mercury mass-based effluent limitation of 0.149 kg/month. This is based on the previous permit. This mass-based effluent limitation maintains current loadings until a TMDL is established. The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL.

vii. *Discharger's Performance and Attainability.* During the period from 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 0.075 µg/L (range from 0.001 µg/L to 0.0275 µg/L, 45 samples, excluding the February 26, 2003, datum of 0.11 µg/L); therefore, it is expected that the Discharger can comply with the interim limitation for mercury.

viii. *Term of IPBEL.* The mercury IPBEL shall remain in effect until April 27, 2010 or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL. During the next permit reissuance, Board staff may reevaluate the mercury IPBEL.

ix. *Mercury Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement mercury source control strategies, as required by Provision C.5 of this Order.

x. *Expected Final Mercury Limitations.* The final mercury WQBELs and the interim mass limitation will be revised to be consistent with the WLA assigned in the adopted mercury TMDL. In order to maintain current ambient receiving water conditions while the TMDL is being developed, the Discharger must comply with performance-based mercury concentration and mass-based limitations contained in this Order.

xi. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the interim and final effluent limitations are both as stringent as the previous permit.

d. Nickel

i. *Nickel WQOs.* The saltwater criteria for nickel in the adopted CTR are 8.2 µg/L for chronic protection and 74 µg/L for acute protection. Included in the CTR are translator values to convert the dissolved criteria to total criteria. The Discharger may also perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1, and the June 1996 USEPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion,* describe this process and provide guidance on how to establish a site-specific translator. Using the CTR translator, translated criteria of 8.3 µg/L for chronic protection and 75 µg/L for acute protection were used to calculate effluent limitations.

ii. *RPA Results.* This Order establishes effluent limitations for nickel because the 38 µg/L MEC exceeds the governing WQO of 8.3 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *WQBELs.* The nickel WQBELs calculated according to SIP procedures are 66 µg/L as the MDEL and 45 µg/L as the AMEL.

iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, all effluent nickel concentrations were below the 45 µg/L AMEL (range from 11.5 µg/L to 37.8 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final WQBELs for nickel.

v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied because the calculated WQBELs are more stringent than the previous permit. Though the previous limit of 65 µg/L is numerically more stringent than the calculated MDEL of 66 µg/L, the pair of AMEL/MDEL is more stringent than the single daily maximum limit. This is because the AMEL will limit the discharge to a lower long-term average level than the previous permit limitation, which only limits the daily average concentration of the effluent, and as a result, the Discharger could practically discharge an effluent with long-term average at the previous daily average level.

e. Selenium

i. *Selenium WQC.* Selenium WQC were promulgated in the NTR for specific waters, which include San Pablo Bay. The NTR established a Criterion Chronic Concentration (CCC) for the protection of aquatic life of 5 µg/L and a Criterion Maximum Concentration (CMC) for the protection of aquatic life of 20 µg/L.

ii. *RPA Results.* The 22 µg/L MEC exceeds the governing WQC of 5 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *Concentration-based WQBELs.* The WQBELs calculated according to SIP procedures are 7.4 µg/L as the MDEL and 4.4 µg/L as the AMEL.

iv. *Immediate Compliance Infeasible.* The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with these WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for selenium.

v. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the selenium WQBELs, an interim limitation is required. Board staff conducted a statistical analysis of recent effluent data. Historically, interim performance-based effluent limitations (IPBELs) have been referenced to the 99.87th percentile value of recent effluent data. Statistical analysis indicates that the 99.87th percentile of the recent selenium effluent data is 34 µg/L. The previous permit included an interim limit of 50 µg/L as a daily maximum, which is less stringent than the 99.87th percentile of the recent effluent data. Therefore, a permit limitation of 34 µg/L is established in this Order as the interim limitation, expressed as a daily maximum limitation.

vi. *Development of Previous Permit Limitation.* On February 20, 1991, and June 19, 1991, the Board adopted Order Nos. 91-026 and 91-099, respectively, amending the NPDES permits for all six refineries in the region, including the Discharger, to add concentration and mass emission limitations for selenium. Order No. 91-026 specified a limit of 50 µg/L as a daily maximum limit. Order No. 91-099 specified a limit of 2.38 lbs/day as a running annual average by December 12, 1993. On October 16, 1992, the Western States Petroleum Association (WSPA) filed a Petition with the Superior Court for the County of Solano on behalf of the six oil refineries seeking to set aside Order Nos. 91-026 and 91-099. On January 19, 1994, the Board adopted Resolution No. 94-016, which approved a Settlement Agreement between WSPA and the Board. The Settlement Agreement adopted the limits included in Orders 91-026 and 91-099. The previous Order includes the daily maximum concentration limit of 50 µg/L and a more stringent annual average mass emission limit of 2.38 lbs/day.

vii. *Discharger's Performance and Attainability.* During the period 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 34 µg/L (range from 3.46 µg/L to 22.1 µg/L, 138 samples); therefore, it is expected that the Discharger can comply with the interim limitation for selenium.

viii. *Term of IPBEL.* The selenium interim limitation shall remain in effect until April 27, 2010, or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.

ix. *Selenium Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement selenium source control strategies, as required by Provision C.5 of this Order.

x. *Expected Final Selenium Limitations.* The final selenium WQBELs will be revised to be consistent with the WLA assigned in the adopted selenium TMDL. While the TMDL is being developed, the Discharger will comply with the performance-based selenium

concentration limitation to cooperate in maintaining current ambient receiving water conditions.

xi. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the interim and final effluent limitations are more stringent than the limitations in the previous permit.

f. Cyanide

i. *Cyanide WQC.* Cyanide WQC were promulgated in the NTR for specific waters, which include San Pablo Bay. The NTR established a Criterion Chronic Concentration (CCC) and a Criterion Maximum Concentration (CMC) for the protection of aquatic life of 1 µg/L.

ii. *RPA Results.* The 4.8 µg/L MEC exceeds the governing WQC of 1 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *Concentration-based WQBELs.* The WQBELs calculated according to SIP procedures are 6.4 µg/L as the MDEL and 3.7 µg/L as the AMEL.

iv. *Immediate Compliance Infeasible.* The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with these WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for cyanide.

v. *Alternative Limit for Cyanide.* As described in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay*, dated November 10, 2005, the Regional Water Board is proposing to develop site-specific criteria for cyanide. In this report, the proposed site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on these assumption, and the Dischargers current cyanide data (coefficient of variation of 0.446), final water quality based effluent limits for cyanide will be 38 µg/L as a MDEL, and 22 µg/L as an AMEL. These alternative limits will become effective only if the site-specific objective adopted for cyanide contains the same assumptions in the staff report, dated November 10, 2005.

vi. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the cyanide WQBELs, an interim limitation is required. The Board considered self-monitoring data from 2003 through 2005 (cyanide concentrations ranged from 1.4 µg/L to 4.8 µg/L) to develop an interim performance based limit. However, the data only contained 9 detected values out of 36 samples, and therefore, it was not possible to perform a meaningful statistical evaluation of current treatment performance. The previous permit included a WQBEL of 25 µg/L as a daily maximum. Therefore, the previous permit limitation of 25 µg/L is established in this Order as the interim limitation, expressed as a daily maximum limitation.

vii. *Discharger's Performance and Attainability.* During the period 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 25 µg/L (range

from 1.4 µg/L to 4.8 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with the interim limitation for cyanide.

viii. *Term of IPBEL.* The cyanide interim limitation shall remain in effect until April 27, 2010, or until the Board amends the limitations based on additional data or site-specific objectives (SSOs).

ix. *Cyanide Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement cyanide source control strategies, as required by Provision C.5 of this Order.

x. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the interim effluent limitation is based on the previous permit limitation, and the final limits are more stringent.

g. TCDD Equivalents

i. *Dioxin TEQ WQC.* The CTR establishes a numeric human health WQC of 0.014 pg/L for 2,3,7,8-TCDD based on consumption of organisms. The preamble of the CTR states that California NPDES permits should use TEQs where dioxin-like compounds have Reasonable Potential with respect to narrative criteria. The preamble further states that USEPA intends to use the 1998 World Health Organization TEF scheme in the future and encourages California to use this scheme in State programs. In addition, the CTR preamble states USEPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The Board used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.

ii. *RPA Results.* Dioxins and furans are known to form during the regeneration of catalytic reformers and the Discharger's wastewater from caustic washes in the catalytic reforming process can contain dioxins and furans. Therefore, there is reasonable potential for TCDD Equivalents. Currently, it is not possible to document compliance with dioxin TEQ limits, as analytical reporting limits available from commercial laboratories using approved USEPA protocols are not low enough. Additionally, the dioxin TEQ maximum background concentration is above the governing WQC.

iii. *Dioxin TEQ Effluent Limits.* The TCDD Equivalents WQBELs calculated according to SIP procedures are 0.028 pg/L as the MDEL and 0.014 pg/L as the AMEL. As the compliance schedule for dioxin-TEQ exceeds the length of the permit, these values are included in the Fact Sheet as a point of reference.

iv. *Immediate Compliance Infeasible.* Compliance with the final WQBELs cannot be demonstrated at this time as the MLs for TCDD Equivalents are higher than the final calculated WQBELs.

v. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the TCDD Equivalents WQBELs, an interim limitation is required. Historically, interim performance-based effluent limitations (IPBELs) have been referenced to the 99.87th percentile value of recent effluent data. In this case, a statistical analysis is not possible due to the number of nondetects. The previous permit included a maximum daily interim limitation of 0.1 pg/L.

Therefore, the previous permit limitation is established in this Order, as an interim limitation.

vi. *Discharger's Performance and Attainability.* Self-monitoring effluent data from 2003 through 2005 indicate that all TCDD Equivalents were nondetect; therefore, it is expected that the Discharger can comply with interim limits provided non-detect is considered zero in TEQ calculations, which is consistent with the SIP.

vii. *Term of IPBEL.* The TCDD Equivalents interim limitation shall remain in effect until June 30, 2011, or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.

viii. *Dioxin TEQ Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement dioxin TEQ source control strategies, as required by Provision C.5 of this Order.

ix. *Expected Final Dioxin TEQ Limitations.* The final TCDD Equivalent WQBELs will be revised to be consistent with the WLA assigned in the adopted dioxin TEQ TMDL. While the TMDL is being developed, the Discharger will comply with the performance-based TCDD Equivalent concentration limitation to cooperate in maintaining current ambient receiving water conditions. Municipal and industrial sources are very small contributors of the dioxins and furans load to the Bay, and the dominant sources are from current and historical air emissions. Because of this, it is unlikely that the TMDL will require reduction efforts beyond the controls required by this permit.

h. Heptachlor Epoxide

i. *WQOs.* The CTR contains numeric saltwater WQOs for heptachlor epoxide of 0.0036 µg/L for chronic protection and 0.053 µg/L for acute protection. The CTR also contains a long-term average WQO of 0.00011 µg/L for protection of human health.

ii. *RPA Results.* The heptachlor epoxide MEC of 0.1 µg/L exceeds the governing WQO of 0.00011 µg/L, demonstrating reasonable potential by Trigger 1, above.

iii. *WQBELs.* The Heptachlor Epoxide WQBELs calculated according to SIP procedures are 0.0018 µg/L for the MDEL and 0.00088 µg/L for the AMEL

iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, 38 of the 39 effluent heptachlor epoxide samples were nondetect; therefore, it is expected that the Discharger can comply with final WQBELs for heptachlor epoxide using the reporting level of 0.01 µg/L required by the SIP.

v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the final effluent limitations are more stringent than the previous permit.

i. PCBs

i. *PCBs WQC.* The CTR contains a numeric water quality criterion of 0.00017 µg/L for the sum of seven individual PCB compounds for the protection of human health based on the consumption of aquatic organisms.

ii. *RPA Results.* The 0.000651 pg/L MEC exceeds the governing WQC of 0.00017 pg/L, demonstrating Reasonable Potential by Trigger 1, above.

iii. *PCB Effluent Limits.* The WQBELs calculated according to SIP procedures are 0.00034 µg/L as the MDEL and 0.00017 µg/L as the AMEL for the sum of seven individual PCB compounds. The previous Order includes limits for each of the seven individual PCBs of 0.00017 µg/L (monthly average) and 0.0034 µg/L (daily average).

iv. *Immediate Compliance Infeasible.* Compliance with the final WQBELs cannot be determined at this time as the MLs of 0.5 µg/L (for each PCB using U.S. EPA approved methods) identified in Appendix 4 of the SIP, are higher than the final calculated WQBELs. However, non-EPA approved methods generated a MEC of 0.000651 µg/L suggesting that the Discharger may not be able to immediately comply.

v. *Interim Effluent Limitations.* Interim limitations are established at the respective MLs. The Discharger may demonstrate compliance by showing no detection of any PCBs above the SIP ML of 0.5 µg/L.

vi. *Discharger's Performance and Attainability.* Self-monitoring effluent data from 2003 through 2005 indicate that PCBs were not detected in the effluent in any of the samples using USEPA approved protocols. However, the Discharger did detect PCBs using more sensitive analytical techniques. In support of the Board's TMDL development for PCBs, the San Francisco Estuary Institute measured PCB congeners in Bay Area refinery discharges using sensitive analytical techniques with large sample volumes to achieve low detection limits. It published the results of these analyses in *Polychlorinated Biphenyls in Northern San Francisco Estuary Refinery Effluents*, dated September 10, 2002, which indicates that Chevron's effluent contained total PCBs ranging from 566 to 651 pg/L. As the MEC of PCBs in the Discharger's effluent exceeds the WQC for protecting human health, the discharge has a reasonable potential to cause exceedances of the WQC for PCBs. However, the methodology described above has not been approved by USEPA, and therefore, cannot be used for compliance purposes. As such, the Discharger should be able to comply with the effluent limitations contained in this Order

The only known historical presence of PCBs at the site was sealed electrical transformers. However, in the previous Order, the Board determined that there is reasonable potential for PCBs and the results from the above analysis suggest a reasonable potential exists. This reasonable potential is based on (a) The historical presence of PCBs at the facility, (b) The San Francisco Estuary Institute's detection of PCBs above the WQC (described above), (c) The detection limits for PCBs using approved USEPA methods are above the WQC, thus, PCBs maybe discharged at a level below the detection limits but above WQC; and (d) PCBs are persistent bioaccumulative toxicants that have impaired the receiving waterbody. In addition, the PCBs have been included in the 303(d) listing because of high fish tissue

levels (*Contaminant Levels in Fish Tissue from San Francisco Bay, San Francisco Regional Water Quality Control Board*, June 1997).

vii. *Term of Interim Effluent Limitations.* PCBs interim effluent limitations shall remain in effect until May 17, 2010, or until the Regional Water Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.

viii. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since final limits are more stringent than the previous permit. This is because values of a sum of 7 compounds are more stringent than the same values for each compound.

Table 20F -Summary of Water Quality-based Effluent Limitations Discharge Point E-001

Parameter	Units	Final Effluent Limits		Interim Effluent Limits	
		Daily Maximum (MDEL)	Monthly Average (AMEL)	Daily Maximum	Monthly Average
Copper	µg/L	25	13		
Lead	µg/L	15	7.4		
Mercury	µg/L	0.046	0.017		0.075
Nickel	µg/L	66	45		
Selenium	µg/L	7.4	4.4	34	
Cyanide	µg/L	6.4	3.7	25	
TCDD Equivalents	µg/L			$1*10^{-7}$	
Heptachlor Epoxide	µg/L	0.0018	0.00088		
Total PCBs[1]	µg/L	0.00017	0.00034	0.5	

[1] The PCB limit applies to the sum of the following individual PCB compounds: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260.

6. Feasibility Evaluation and Compliance Schedules:

a. Feasibility Evaluation. The Discharger submitted infeasibility to comply reports on March 23, 2006, for mercury, selenium, cyanide, PCBs, and TCDD Equivalents. For constituents that Board staff could perform a meaningful statistical analysis (i.e., selenium), it used self-monitoring data from 2003- 2005 to compare the median, 95th percentile, and 99th percentile with the long-term average (LTA), AMEL, and MDEL to confirm if it is feasible for the Discharger to comply with WQBELs. If the LTA, AMEL, and MDEL all exceed the mean, 95th percentile, and 99th percentile, it is feasible for the Discharger to comply with WQBELs. Table 21F below shows these comparisons in µg/L.

Table 21F - Summary of Feasibility Analysis

	Median / LTA	95th / AMEL	99th / MDEL	Feasible to Comply
Selenium	9.7 > 3.2	19 > 4.4	26 > 7.4	No

On mercury, the data could not be transformed to fit a normal distribution, and therefore, it was not possible to perform a statistical analysis with the comparisons shown in Table 21F. The observed maximum effluent concentration of mercury between 2003 and 2005 was 0.11 µg/L, which exceeds the AMEL calculated in accordance with the SIP. Therefore, it is infeasible for the Discharger to immediately comply with final WQBELs for mercury.

For cyanide, PCBs, and TCDD Equivalents, it was not possible to statistically analyze the data due to the number of nondetects. On cyanide, the observed maximum effluent concentration of 4.8 µg/L exceeds the AMEL calculated in accordance with the SIP. Therefore, it is infeasible for the Discharger to immediately comply with final WQBELs for cyanide. For PCBs and TCDD Equivalents, all data from 2003 through 2005 has been nondetect, and the minimum levels are too high to evaluate compliance with the final WQBELs.

b. Compliance Schedules. This permit establishes compliance schedules until May 17, 2010, PCBs; and until April 27, 2010 for mercury, cyanide, and selenium. Since these compliance schedules are within the effective date of the permit, this Order includes final WQBELs. For TCDD-TEQ, this permit established a compliance schedule until June 30, 2011, which exceeds the length of the permit.

During the compliance schedules, interim limitations are included based on current treatment facility performance or on previous permit limitations, whichever is more stringent to maintain existing water quality. The Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met.

i. Total PCBs. For total PCBs, the previous permit did not grant an interim limit. As it is not possible for the Discharger to document compliance because U.S. EPA approved analytical methods cannot quantify total PCBs at low enough levels, it is not possible to determine compliance with final limits. Because SIP §2.1 provides for a maximum five-year compliance schedule, and the Discharger has not been previously granted such a schedule under §2.1, the Discharger qualifies for such a §2.1 schedule up to the maximum statutory date (May 17, 2010), which is ten years from the effective date of the CTR/SIP. The basis for this compliance schedule is the CTR/SIP.

ii. Mercury. For mercury, the previous permit included an interim limit that was to remain effective until May 18, 2010. However, the basis for the mercury compliance schedule in previous permit (Basin Plan/CTR) was incorrect. The compliance schedule for final mercury limits should be based on the Basin Plan and SIP (i.e., 10 years from the effective date of the SIP). Therefore, in this Order, compliance with final mercury limits must be achieved by no later than April 28, 2010.

iii. Cyanide. For cyanide, the Regional Water Board granted, in the previous permit, a compliance schedule pursuant to the 2000 SIP §2.2.2, Interim Requirements for Providing Data (note 2005 SIP amendment deleted this section as it is not applicable to permits effective after May 18, 2003). This was to allow collection of ambient data, because the Regional Monitoring Program data were not complete primarily due to inadequate detection limits. The Discharger, thru BACWA and WSPA, helped fund an effort to collect these data as part of the collaborative receiving water monitoring for other CTR pollutants. The Regional Water Board has received these data, which form the basis for current permits. However, the use of the SIP to grant a compliance schedule for cyanide in the previous permit was incorrect. The NTR promulgated water quality objectives for cyanide, with the Basin Plan as the implementation tool, and therefore, the compliance schedule provisions in the SIP are not applicable. This is because SIP compliance schedules apply only to "...CTR criterion-based effluent limitations..." The Basin Plan provides for a 10-year compliance schedule for implementation of measures to comply with new standards as of the effective date of those standards. This provision has been construed to authorize compliance schedules for new interpretations of existing standards, if the new interpretations result in more stringent limits than in the previous permit. As the SIP methodology for calculating water quality based effluent limits results in more stringent limits, the Basin Plan provides for a 10-year compliance schedule from the effective date of the SIP. Therefore, in this Order, compliance with final cyanide limits must be achieved by no later than April 28, 2010.

iv. Selenium. For selenium, the Regional Water Board included an interim limit that was to remain effective until June 30, 2006 based on the CTR and SIP. The National Toxics Rule promulgated water quality objectives for selenium, and therefore, this CTR/SIP compliance schedule was incorrect. In the case of NTR pollutants (as stated for cyanide), the compliance schedule provisions in the SIP do not apply because §2.1 of the SIP applies only to "...CTR criterion-based effluent limitations..." As with cyanide, the SIP methodology for calculating water quality based effluent limits results in more stringent limits. Therefore, the Basin Plan provides for a 10-year compliance schedule from the effective date of this SIP. Therefore, in this Order, compliance with final selenium limits must be achieved by no later than April 28, 2010.

v. TCDD Equivalents. For TCDD Equivalents, the previous permit included an interim limits that was to remain effective until June 30, 2011. This Order carries over the compliance schedule from the previous permit.

7. Whole Effluent Toxicity (WET)

a. Acute Toxicity - Effluent Limitation A.2c: The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limits are necessary to ensure that this objective is protected. The acute toxicity limit is consistent with the previous permit and is based on the Basin Plan Table 4-2, page 4-69.

b. **Chronic Toxicity - Effluent Limitation A.2d:** The chronic toxicity limit is consistent with the previous permit and is based on the Basin Plan's narrative toxicity definition on page 3-4.

8. **Interim Mass Limits**

a. **Mercury Interim Mass Limit - Effluent Limitation A.3:** This Order establishes a running average mercury, mass-based effluent limitation of 0.149 kilograms per month. This limit is based on the previous permit. This mass-based effluent limitation maintains current loadings until a TMDL is established and is consistent with state and federal antidegradation and antibacksliding requirements. The final mass based effluent limitation will be based on the WLA derived from the mercury TMDL.

b. **Selenium Interim Mass Limit - Effluent Limitation A.4:** This Order includes an interim mass emission limit for selenium of 2.38 lbs/day. This limitation is based on a Settlement Agreement between WSPA and the Board.

9. **Stormwater Limits – Effluent Limitation A.5**. These limits are based on based on 40 CFR § 419 Subpart E.

10. **Credit for Recycled Water Use - Effluent Limitation A.6.** This credit is to encourage the Discharger to use recycled water provided it will not cause toxicity to aquatic life.

D. Final Effluent Limitations – see above

E. Interim Effluent Limitations – see above

F. Land Discharge Specifications – N/A

G. Reclamation Specifications – N/A

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. **Receiving water limitations V.A.1 through V.A.7 (conditions to be avoided):** These limits are based on the previous Order and the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, page 3-2 – 3-5.

2. **Receiving water limitation V.A.8 (compliance with State Law):** This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

B. Groundwater – N/A

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Influent Monitoring. This Order does not require the Discharger to conduct influent monitoring. However, it does provide the Discharger with the opportunity to receive credits for the use of recycled water. In such cases, the Discharger will need to conduct monitoring for such pollutants at I-002.

B. Effluent Monitoring. This Order requires monitoring at E-001 for conventional, non-conventional, and toxic pollutants. For conventional pollutants, this Order requires monthly monitoring, which is necessary for evaluating compliance for a major discharger that has daily and monthly loading limits that are based on concentration and flow. For one constituent that the Water Board has granted interim limits (selenium), this Order requires weekly monitoring. The exceptions to this requirement are cyanide, mercury, TCDD Equivalents, and PCBs. Additional cost and effort is required for ultra-clean mercury monitoring, thus this Order requires monthly monitoring. For cyanide this Order requires monthly monitoring due to the significant number of nondetects. For TCDD Equivalents, and PCBs due to the considerable costs and the non-detects the Discharger has found, this Order requires twice yearly monitoring, which is also consistent with the SIP. Further, this Order requires monthly monitoring of copper, lead, and nickel, and quarterly monitoring for heptachlor epoxide to demonstrate compliance with final effluent limitations.

C. Whole Effluent Toxicity Testing Requirements. This Order requires weekly monitoring for acute toxicity, and quarterly monitoring for chronic toxicity. Additionally, this Order requires that the Discharger conduct screening phase monitoring for chronic toxicity to ensure that it continues to monitor the most sensitive species. Whole effluent toxicity monitoring is necessary to ensure that unmonitored pollutants, or pollutants that may have synergistic effects will not have adverse impacts to aquatic life.

D. Receiving Water Monitoring

1. Surface Water

This Order requires monitoring at location C-001 for conventional pollutants that are unchanged from the previous permit. For toxic pollutants, this Order allows the Discharger to participate in collaborative receiving water monitoring with other dischargers under the provisions of the August 6, 2001 letter, and the RMP, in lieu of near field discharge specific ambient monitoring.

2. **Groundwater – N/A**

E. Other Monitoring Requirements – Stormwater

This Order includes monitoring at locations E-002, E-003, and E-008 through E-023 (with the exception of E-012) for oil and grease, total organic carbon, pH, total suspended solids and specific conductance. This monitoring is necessary to evaluate compliance with effluent limitations, and ensure the Discharger is implementing best management practices. Additionally, this Order requires priority pollutant monitoring at locations E-011 and E-013 due to historic contamination within these basins.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions – (Provision A)

Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

B. Special Provisions – (Provision C)

1. **Reopener Provisions**
These provisions are based on 40 CFR 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

2. **Permit Compliance and Rescission of Previous Waste Discharge Requirements**
Time of compliance is based on 40 CFR 122. The basis of this Order superseding and rescinding the previous permit is based on 40 CFR 122.46.

3. **Effluent Characterization for Selected Constituents**
This provision establishes monitoring requirements as stated in the Board's August 6, 2001 Letter under Effluent Monitoring for major dischargers. Interim and final reports shall be submitted to the Board in accordance with the schedule specified in the August 6, 2001 Letter. This provision is based on the Basin Plan and the SIP.

4. **Receiving Water Monitoring**
This provision, which requires the Discharger to continue to conduct receiving water monitoring is based on the previous Order and the Basin Plan.

5. **Pollutant Prevention and Minimization Program**
This provision is based on the Basin Plan, page 4-25 – 4-28, and the SIP, Section 2.1, Compliance Schedules.

6. **Mass and Concentration Credits**
This provision is necessary to protect beneficial uses identified in the Basin Plan (the Discharger must ensure that granting it pollutant credits for the use of recycled water will not cause toxicity). As explained earlier in the Fact Sheet, this Order limits dilution to 10:1 for conservative pollutants, and does not grant dilution for bioaccumlative pollutants where

there is evidence that they are accumulating to unsafe levels in wildlife. The use of recycled water will not increase the mass of pollutants discharged to the Bay (i.e., bioaccumlative pollutants will be discharge at the same levels or less than would otherwise be discharged to the Bay without reclamation), and therefore, the granting of mass credits for such pollutants is protective. While the Board has established its support for reclamation projects, there is a concern that granting concentration credits could cause a zone of toxicity. The flip side is that without concentration credits, it may be infeasible for a Discharger to move forward with a recycled water project. In this case, the discharge is relatively close to the RMP background station used to calculate water quality based effluent limits, the Discharger's dilution study shows a minimum dilution of at least 200:1, the use of recycled water will not increase the mass of pollutants discharged to the Bay, and the Board supports the use of recycled water. As such, to document that the use of recycled water is not causing a zone of aquatic toxicity, it is appropriate to consider a dilution factor greater than 10:1. Since Section 1.4.2.2 of the SIP states that "a mixing zone shall be as small as practicable," it is appropriate to use a dilution factor much smaller than that shown in the Discharger's dilution study. In this case, a dilution factor of 20:1 is considered reasonable as a balance between encouraging and supporting reclamation, and protecting water quality from a more concentrated discharge. At a minimum, before the Discharger is eligible to receive recycled water concentration credits, it will need to document that concentrations of pollutants in its effluent (E-001) do not exceed the following water quality thresholds:

Table 22F: Maximum Allowable Concentrations in E-001 to Receive Reclamation Credits for Recycled Water

Constituent	Thresholds for Reclamation Credits		Interim Limits	
	Average Monthly (µg/L)	Maximum Daily (µg/L)	Maximum Daily (µg/L)	Average Monthly (µg/L)
Copper[4]	23	45		
Lead	14	28		
Nickel[4]	87	130		
Cyanide[2]	7.1	12	25	
Cyanide (alt limits)[3]	44	76		
Heptachlor Epoxide	0.0017	0.0035		

[1] As mercury, selenium, TCDD Equivalents, and total PCBs are bioaccumulative pollutants, and will be regulated through a waste load allocation in a TMDL, additional concentration credits for these pollutants is not provided for in this Order.

[2] The interim limit for cyanide remains effective until April 27, 2010, or until site-specific criteria become applicable. If site-specific criteria for cyanide are not applicable by April 27, 2010, these are the maximum concentrations the Discharger shall use for determining whether it can be granted concentration credits for this pollutant.

[3] Should the alternative limits for cyanide become effective, as described in this Order, these are the maximum concentrations the Discharger shall use for determining whether it can be granted concentrations credits for this pollutant.

[4] The threshold values for copper and nickel may be updated based on the copper and nickel site-specific objectives and translators being developed for San Francisco Bay.

The values shown in Table 22 are the maximum allowable concentrations in E-001 for the Discharger to be eligible to receive recycled water concentration credits. If the Discharger is eligible for such credits, it will still need to document that with these credits, using the

procedure indicated in Effluent Limitations and Discharge Specifications A.6, it complies with the limitations shown under Effluent Limitations and Discharge Specifications A.2.

7. **Storm Water Pollution Prevention Plan and Annual Report**
This provision is based on and consistent with Basin Plan objectives, statewide storm water requirements for industrial facilities, and applicable USEPA regulations.

8. **Whole Effluent Acute Toxicity**
This provision establishes conditions by which compliance with permit effluent limits for acute toxicity will be demonstrated. Conditions include the use of flow through bioassays with rainbow trout, in accordance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,* 5th Edition. These conditions are based on the effluent limits for acute toxicity given in the Basin Plan, Chapter 4, and BPJ.

9. **Chronic Toxicity**
This provision establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). These conditions apply to the discharges to San Francisco Bay and the numerical values for chronic toxicity evaluation are based on a minimum initial dilution ratio of 10:1. This provision also requires the Discharger to conduct a screening phase monitoring requirement and implement toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge. New testing species and/or test methodology may be available before the next permit renewal. Characteristics, and thus toxicity, of the process wastewater may also have been changed during the life of the permit. This screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for future compliance monitoring. The proposed conditions in the draft permit for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent limitations for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

10. **Optional Mass Offset**
This option is provided to encourage the Discharger to implement aggressive reduction of mass loads to San Pablo Bay.

11. **Contingency Plan Update**
This provision is based on the requirements stipulated in Board Resolution No. 74-10.

12. **Collection System Maintenance**
This provision, based on the Basin Plan, is necessary to document that the Discharger implements appropriate operation and maintenance of its collection system to avoid spills to the maximum extent feasible. The Basin Plan prohibits the discharge of oil or any residuary product of petroleum to the waters of the State, except in accordance with waste discharge requirements or other Provisions of Division 7 of the California Water Code. As any discharge from Chevron's collection system would be unpermitted, it is appropriate to

have Chevron document that it properly maintains its collection system to show that all wastewater generated onsite reaches its treatment plant.

13. Actions for Compliance Schedule Pollutants

This provision, based on the SIP, requires that the Discharger participate in the development of a TMDL or SSO for mercury, cyanide, selenium, PCBs, and dioxin-TEQ. In accordance with Section 2.1 of the SIP, and Chapter 4 of the Basin Plan, for the Board to authorize compliance schedules in a permit the Discharger must, in part, propose a schedule for additional or future source control measures, pollution minimization actions, or waste treatment. In the case of mercury, cyanide, selenium, PCBs, and dioxin-TEQ, the Discharger indicates that it proposes to achieve compliance with final limits through the SSO or TMDL process. Therefore, annual reporting on Discharger's efforts to facilitate SSO or TMDL development along with implementation of its Pollution Minimization Plan (required by Provision C.5) satisfy the intent of Section 2.1 of the SIP. In the event TMDL(s) or SSO(s) are not developed for mercury, selenium, cyanide, or PCBs by July 1, 2009, this provision also requires the Discharger to submit a schedule that documents how it will further reduce pollutant concentrations to ensure compliance with the final limits.

14. Wastewater Discharges from the Wetland

This provision is based on the previous Order. The Discharger operates a water enhancement wetland to improve the quality of treated wastewater before it is routed to San Pablo Bay. While for the last five years the Discharger has routed all wetland effluent to the GAC facility before discharge to San Pablo Bay, it has indicated that it would like to retain the option to discharge up to 3 mgd of wetland effluent directly to outfall 001. To document that such a discharge will not pose a threat to water quality, this Order requires the Discharger to document that wetland effluent will not cause acute toxicity. This is because the main function of the GAC facility is to eliminate acute toxicity.

15. Changes in Control or Ownership

This provision is based on 40 CFR 122.61.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Chevron Richmond Refinery. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following: (a) paper and electronic copies of this Order were relayed to

the Discharger, and (b) the Martinez News Gazette published a notice that this item would appear before the Board on June 14, 2006.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on May 15, 2006.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	June 14, 2006
Time:	9:00 am
Location:	Elihu Harris State Office Building 1515 Clay Street, 1st Floor Auditorium Oakland, CA 94612

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is www.waterboards.ca.gov/sanfranciscobay where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday, except from noon to 1:00 p.m. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Robert Schlipf at 510-622-2478, rschlipf@waterboards.ca.gov.

Attachment 1: Calculations for Production-Based Effluent Limitations
Attachment 2: RPA Results for Priority Pollutants at E-001
Attachment 3: Calculation of Final WQBELs at E-001

ATTACHMENT 1

CALCULATIONS FOR PRODUCTION-BASED
BPT, BCT, AND BAT EFFLUENT LIMITATIONS
FOR
CHEVRON RICHMOND REFINERY

References:

1) 40 CFR § 419 Subpart E Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category (Integrated Subcategory)
2) Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category
3) Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry
4) NPDES Application for Permit Reissuance (November 2005)
5) Refinery Production Data 2002 – 2005, provided by the facility. The highest 12-month average from this period was used in calculations (June 2004 through May 2005).

Production-Based Effluent Limitations

STEP 1: Determine the size factor based on the refinery feedstock rate. Based on 40 CFR § 419 Subpart E, a total refinery throughput of 224.2 kbbl/d results in a

SIZE FACTOR = 0.99

STEP 2: Determine the process configuration based on the process rates:

Process	Process Feedstock Rate (kbbl/d)	Fraction of Total Throughput	Weight Factor	Process Configuration
Total Refinery Throughput = 224.2 kbbl/d				
CRUDE:				
Atmospheric Distillation	224.2	1.0		
Vacuum Crude Distillation	102.6	0.458		
Desalting	241.5	1.077		
TOTAL	568.3	2.535	1	2.535
CRACKING & COKING:				
Fluid Catalytic Cracking	67.4	0.301		
Hydrocracking	114.2	0.509		
Hydrotreating	156.2	0.697		
TOTAL	337.8	1.507	6	9.042
LUBE				
Lube Hydrofining	20.3	0.0905		
Propane Deasphalting	40.3	0.1798		
TOTAL	60.6	0.2703	13	3.514
TOTAL PROCESS CONFIGURATION =				15.09

(kbbl/d = Thousand Barrels per day)

STEP 3: Determine the process factor. Based on 40 CFR § 419 Subpart E, a total process configuration of 15.09 results in a

PROCESS FACTOR = 2.26

STEP 4: Based on 40 CFR § 419.22(a), 419.23(a), and 419.24(a), the BPT/BAT/BCT effluent limit is equal to

(THROUGHPUT) X (SIZE FACTOR) X (PROCESS FACTOR) X (EFFLUENT LIMIT FACTOR)

EFFLUENT LIMIT = (224.2)(0.99)(2.26)(Effluent Limit Factor)
= (501.6)(Effluent Limit Factor)

'ollutant	Effluent Limit in 40 CFR 419E						Multiplier	Final Limit Calculated						Final Limit	
	BPT		BAT		BCT			BPT		BAT		BCT			
	Daily Max	30-d Avg	Daily Max	30-d Avg	Daily Max	30-d Avg		Daily Max	30-d Avg	Daily Max	30-d Avg	Daily Max	30-d Avg	Daily Max	30-d Avg
	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl		lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d
OD_5	19.2	10.2			19.2	10.2	501.6	9630	5116			9630	5116	9630	5116
'SS	13.2	8.4			13.2	8.4	501.6	6621	4213			6621	4213	6621	4213
'OC	42.2	22.4					501.6	21167	11235					21167	11235
)&G	6	3.2			6	3.2	501.6	3010	1605			3010	1605	3010	1605
'henols 4AAP)*	0.14	0.068					501.6	70.22	34.11					70.22	34.11
NH_3-N	8.3	3.8	8.3	3.8			501.6	4163	1906	4163	1906			4163	1906
ulfide	0.124	0.056	0.124	0.056			501.6	62.2	28.1	62.2	28.1			62.2	28.1
'otal Cr	0.29	0.17					501.6	145.5	85.3					145.5	85.3
lex Cr	0.025	0.011					501.6	12.5	5.5					12.5	5.5

*The BPT limits for these constituents are applicable only if they are more stringent than BAT limits (see STEP 5) below).

STEP 5: Calculate Amended BAT limits pursuant to 40 CFR § 419.53, for phenolic compounds (4AAP), total and hexavalent chromium. The effluent limit is equal to the sum of the products of each effluent limitation factor times the applicable process feedstock rate.

Pollutant	Process Category	BAT Effluent Limit Factors (lb/kbbl)		Feedstock (kbbl/d)	Effluent Limitation (lb/d)	
		Daily Max.	30-d Average		Daily Max.	30-d Average
Phenolic Compounds (4AAP)	Crude	0.013	0.003	568.3	7.39	1.70
	Cracking & Coking	0.147	0.036	337.8	49.66	12.16
	Lube	0.369	0.090	60.6	22.36	5.45
	Reforming & Alkylation	0.132	0.032	68.1	8.99	2.18
				TOTAL	88.40	21.50
Total Chromium	Crude	0.011	0.004	568.3	6.25	2.27
	Cracking & Coking	0.119	0.041	337.8	40.20	13.85
	Lube	0.299	0.104	60.6	18.12	6.30
	Reforming & Alkylation	0.107	0.037	68.1	7.29	2.52
				TOTAL	71.86	24.95
Hexavalent Chromium	Crude	0.0007	0.0003	568.3	0.40	0.17
	Cracking & Coking	0.0076	0.0034	337.8	2.57	1.15
	Lube	0.0192	0.0087	60.6	1.16	0.53
	Reforming & Alkylation	0.0069	0.0031	68.1	0.47	0.21
				TOTAL	4.60	2.06

STEP 6: Compare Amended BAT limitations for phenolic compounds (4AAP), total chromium, and hexavalent chromium with BPT limitations.

Except for daily maximum limitation for phenolic compounds, the above BAT limits are more stringent than the BPT limits calculated in STEP 4. Therefore, for these constituents, the above BAT limits, and the daily maximum BPT limit for phenolic compounds are considered for inclusion in the permit.

Chevron Richmond Refinery
Attachment 2
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3					Step 4		Step 2	Step 3		Step 4	Step 5	Step 6	Step 7 & 8	Combined Effluent Final Result, Flow Weighted Averages			
		C (ug/L)						Maximum Pollutant Concentration (MEC) (ug/L)	MEC vs. C							B vs. C	7) Review other information in the SIP page 4. Y if other information indicates limits are required. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.					
	Constituent name	Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	(MEC* detected max value; if all ND & MDL<C then MEC = MDL)	Y if If MEC >= C, effluent limitation is required; 2 If MEC<C, go to Step 5	Background Data Available?	Are all B data points non-detects?	If all data points ND Enter the min. detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C? (If Y, Go To Step 7)	If B>C, effluent limitation is required	RPA Result	Reason	Daily Max, ug/l	Monthly Average, ug/l
A	B	C	D	E	F	G	H	I	J	L	M	N	O	P	Q	R	S	T		
1	Antimony	4300	Y	N		1.02		1.02	MEC<C, go to Step 5	Y			1.6		B<C, Step 7					
2	Arsenic [b]	36	Y	N		28.2		28.2	MEC<C, go to Step 5	Y			2.46		B<C, Step 7					
3	Beryllium	No Criteria	Y	Y	0.2		No Criteria	0.2	No Criteria	Y			0.215		No Criteria	No Criteria		Uo - No Criteria		
4	Cadmium [b]	1.626908822	Y			0.2		0.2	MEC<D, go to Step 5	Y			0.1258		B<C, Step 7					
5a	Chromium (III)	134.3573668	Y	N		2.86		2.86	MEC<C, go to Step 5						No detected value of B, Step 7					
5b	Chromium (VI) [b]	11.43451143	Y	N		1.44		1.44	MEC<C, go to Step 5	Y			4.4		B<C, Step 7					
6	Copper [b]	3.735	Y	N		6.73		6.73	Y	Y			2.45		B<C, Step 7		Y	MEC => C [6.730 ug/l vs 3.735 ug/l]	24.52	12.73
7	Lead [b]	1.825320726	Y	N		2.68		2.68	Y	Y			0.8		B<C, Step 7		Y	MEC => C [2.680 ug/l vs 1.825 ug/l]	14.87	7.41
8	Mercury (303d listed) [b]	0.025	Y	N		0.11		0.11	Y	Y			0.0086		B<C, Step 7		Y	MEC => C [0.110 ug/l vs 0.025 ug/l]	0.0462	0.0172
9	Nickel [b]	8.282828283	Y	N		37.8		37.8	Y	Y			3.7		B<C, Step 7		Y	MEC => C [37.800 ug/l vs 8.283 ug/l]	96.10	45.01
10	Selenium (303d listed) [b]	5	Y	N		22.1		22.1	Y	Y			0.39		B<C, Step 7		Y	MEC => C [22.100 ug/l vs 5.000 ug/l]	7.39	4.38
11	Silver [b]	1.06743994	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y			0.0518		B<C, Step 7					
12	Thallium	6.3	Y	N		1.46		1.46	MEC<C, go to Step 5	Y			0.21		B<C, Step 7					
13	Zinc [b]	76.62301406	Y	N		50.41		50.41	MEC<C, go to Step 5	Y			5.1		B<C, Step 7					
14	Cyanide [b]	1	Y	N		4.6		4.6	Y	Y	Y	0.4		FALSE	No detected value of B, Step 7		Y	MEC => C [4.600 ug/l vs 1.000 ug/l]	8.40000	3.65017
15	Asbestos	No Criteria					No Criteria		No Criteria						No Criteria	No Criteria		Uo - No Criteria		
16	2,3,7,8-TCDD	0.000000014	Y	Y	0.00000038					Y		0.00000035			No detected value of B, Step 7					
	dioxin-TEQ (303d listed)	0.000000014	Y	Y			MDL > C, Interim Monitor, Go To Step 5			Y			0.000000071		Y	Y	Y	Trigger 3	0.000000025	0.000000014
17	Acrolein	780	Y	Y	0.9		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
18	Acrylonitrile	0.66	Y	Y	2		MDL > C, Interim Monitor, Go To Step 5			Y			0.03		B<C, Step 7			Effluent MDL > C, Interim Monitor		
19	Benzene	71	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
20	Bromoform	360	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
21	Carbon Tetrachloride	4.4	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y			0.06		B<C, Step 7					
22	Chlorobenzene	21000	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
23	Chlorodibromomethane	34	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
24	Chloroethane	No Criteria	Y	Y	0.5		No Criteria	0.5	No Criteria	Y	Y	0.5		FALSE	No Criteria	No Criteria		Uo - No Criteria		
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	0.5		No Criteria	0.5	No Criteria	Y	Y	0.5		FALSE	No Criteria	No Criteria		Uo - No Criteria		
26	Chloroform	No Criteria	Y	N		0.9	No Criteria	0.9	No Criteria	Y	Y	0.5		FALSE	No Criteria	No Criteria		Uo - No Criteria		
27	Dichlorobromomethane	46	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
28	1,1-Dichloroethane	No Criteria	Y	Y	0.5		No Criteria	0.5	No Criteria	Y	Y	0.05		FALSE	No Criteria	No Criteria		Uo - No Criteria		
29	1,2-Dichloroethane	99	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y			0.04		B<C, Step 7					
30	1,1-Dichloroethylene	3.2	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
31	1,2-Dichloropropane	39	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
32	1,3-Dichloropropylene	1700	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5						No detected value of B, Step 7					
33	Ethylbenzene	29000	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
34	Methyl Bromide	4000	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
35	Methyl Chloride	No Criteria	Y	Y	0.5		No Criteria	0.5	No Criteria	Y	Y	0.5		FALSE	No Criteria	No Criteria		Uo - No Criteria		
36	Methylene Chloride	1600	Y	N		2		2	MEC<C, go to Step 5	Y			0.5		B<C, Step 7					
37	1,1,2,2-Tetrachloroethane	11	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
38	Tetrachloroethylene	8.85	Y	N		0.5		0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
39	Toluene	200000	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
40	1,2-Trans-Dichloroethylene	140000	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
41	1,1,1-Trichloroethane	No Criteria	Y	Y	0.5		No Criteria	0.5	No Criteria	Y	Y	0.5		FALSE	No Criteria	No Criteria		Uo - No Criteria		
42	1,1,2-Trichloroethane	42	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.05		FALSE	No detected value of B, Step 7					
43	Trichloroethylene	81	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
44	Vinyl Chloride	525	Y	Y	0.5		MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
45	2-Chlorophenol	400	Y	Y	2		MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	1.2		FALSE	No detected value of B, Step 7					
46	2,4-Dichlorophenol	790	Y	Y	1		MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	1.3		FALSE	No detected value of B, Step 7					
47	2,4-Dimethylphenol	2300	Y	Y	2		MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	1.3		FALSE	No detected value of B, Step 7					
48	2-Methyl- 4,6-Dinitrophenol	765	Y	Y	5		MDL<=C, MDL=MEC	5	MEC<C, go to Step 5	Y	Y	1.2		FALSE	No detected value of B, Step 7					
49	2,4-Dinitrophenol	14000	Y	Y	5		MDL<=C, MDL=MEC	5	MEC<C, go to Step 5	Y	Y	0.7		FALSE	No detected value of B, Step 7					
50	2-Nitrophenol	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	1.3		FALSE	No Criteria	No Criteria		Uo - No Criteria		
51	4-Nitrophenol	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	1.6		FALSE	No Criteria	No Criteria		Uo - No Criteria		
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	1		No Criteria	1	No Criteria	Y	Y	1.1		FALSE	No Criteria	No Criteria		Uo - No Criteria		
53	Pentachlorophenol	7.9	Y	Y	1		MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	1		FALSE	No detected value of B, Step 7					
54	Phenol	4600000	Y	Y	1		MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	1.3		FALSE	No detected value of B, Step 7					
55	2,4,6-Trichlorophenol	6.5	Y	N		5		5	MEC<C, go to Step 5	Y	Y	1.3		FALSE	No detected value of B, Step 7					
56	Acenaphthene	2700	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5	Y			0.0015		B<C, Step 7					
57	Acenaphthylene	No Criteria	Y	Y	0.2		No Criteria	0.2	No Criteria	Y			0.00053		No Criteria	No Criteria		Uo - No Criteria		
58	Anthracene	110000	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5	Y			0.0005		B<C, Step 7					
59	Benzidine	0.00054	Y	Y	5		MDL > C, Interim Monitor, Go To Step 5			Y	Y	0.0015		Y	No detected value of B, Step 7			Effluent MDL > C, Interim Monitor		

Chevron Richmond Refinery
Attachment 2
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3					Step 4		Step 2	Step 3			Step 4	Step 5	Step 6	Step 7 & 8	Combined Effluent Final Result, Flow Weighted Averages				
		C (µg/L)						Maximum Pollutant Concentration (MEC) (ug/L)	MEC vs. C								B vs. C						
	Constituent name	Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND.	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	(MEC= detected max value; if all ND & MDL<C then MEC = MDL)	Y if MEC >= C, effluent limitation is required; 2. If MEC<C, go to Step 5	Background Data Available?	Are all B data points non-detects?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C? (If Y, Go To Step 7)	If B>C, effluent limitation is required	7) Review other information in the SIP page 4. Y if other information indicates limits are required. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements	RPA Result	Reason	Daily Max. ug/l	Monthly Average, ug/l
60	Benzo(a)Anthracene	0.049	Y	Y	0.1		MDL > C, Interim Monitor, Go To Step 5			Y			0.0053		B<C, Step 7			Effluent MDL > C, Interim Monitor		
61	Benzo(a)Pyrene	0.049	Y	Y	0.3		MDL > C, Interim Monitor, Go To Step 5			Y			0.00029		B<C, Step 7			Effluent MDL > C, Interim Monitor		
62	Benzo(b)Fluoranthene	0.049	Y	Y	0.3		MDL > C, Interim Monitor, Go To Step 5			Y			0.0046		B<C, Step 7			Effluent MDL > C, Interim Monitor		
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria	Y			0.0027		No Criteria	No Criteria		Uo - No Criteria		
64	Benzo(k)Fluoranthene	0.049	Y	Y	0.3		MDL > C, Interim Monitor, Go To Step 5			Y			0.0015		B<C, Step 7			Effluent MDL > C, Interim Monitor		
65	Bis(2-Chloroethoxy)Methane	No Criteria	Y	Y	2		No Criteria	2	No Criteria	Y	Y	0.3		FALSE	No Criteria	No Criteria		Uo - No Criteria		
66	Bis(2-Chloroethyl)Ether	1.4	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.3		FALSE	No detected value of B, Step 7					
67	Bis(2-Chloroisopropyl)Ether	170000	Y	Y	2		All ND MDL<=C, MDL=MEC	2	MEC<C, go to Step 5						No detected value of B, Step 7					
68	Bis(2-Ethylhexyl)Phthalate	5.9	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.6		FALSE	No detected value of B, Step 7					
69	4-Bromophenyl Phenyl Ether	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	0.23		FALSE	No Criteria	No Criteria		Uo - No Criteria		
70	Butylbenzyl Phthalate	5200	Y	Y	2		All ND MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	0.52		FALSE	No detected value of B, Step 7					
71	2-Chloronaphthalene	4300	Y	Y	2		All ND MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	0.3		FALSE	No detected value of B, Step 7					
72	4-Chlorophenyl Phenyl Ether	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	0.3		FALSE	No Criteria	No Criteria		Uo - No Criteria		
73	Chrysene	0.049	Y	Y	0.3		MDL > C, Interim Monitor, Go To Step 5			Y			0.0024		B<C, Step 7			Effluent MDL > C, Interim Monitor		
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.1		MDL > C, Interim Monitor, Go To Step 5			Y			0.00064		B<C, Step 7			Effluent MDL > C, Interim Monitor		
75	1,2-Dichlorobenzene	17000	N			0	No Effluent Data			Y	Y	0.8		FALSE	No detected value of B, Step 7					
76	1,3-Dichlorobenzene	2600	Y	Y	0.5		All ND MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.8		FALSE	No detected value of B, Step 7					
77	1,4-Dichlorobenzene	2600	Y	Y	0.5		All ND MDL<=C, MDL=MEC	0.5	MEC<C, go to Step 5	Y	Y	0.8		FALSE	No detected value of B, Step 7					
78	3,3 Dichlorobenzidine	0.077	Y	Y	5		MDL > C, Interim Monitor, Go To Step 5			Y	Y	0.001		FALSE	No detected value of B, Step 7			Effluent MDL > C, Interim Monitor		
79	Diethyl Phthalate	120000	Y	Y	2		All ND MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	0.24		FALSE	No detected value of B, Step 7					
80	Dimethyl Phthalate	2900000	Y	Y	2		All ND MDL<=C, MDL=MEC	2	MEC<C, go to Step 5	Y	Y	0.24		FALSE	No detected value of B, Step 7					
81	Di-n-Butyl Phthalate	12000	Y	Y	5		All ND MDL<=C, MDL=MEC	5	MEC<C, go to Step 5	Y	Y	0.5		FALSE	No detected value of B, Step 7					
82	2,4-Dinitrotoluene	9.1	Y	Y	5		All ND MDL<=C, MDL=MEC	5	MEC<C, go to Step 5	Y	Y	0.27		FALSE	No detected value of B, Step 7					
83	2,6-Dinitrotoluene	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	0.29		FALSE	No Criteria	No Criteria		Uo - No Criteria		
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	0.38		FALSE	No Criteria	No Criteria		Uo - No Criteria		
85	1,2-Diphenylhydrazine	0.54	Y	Y	1		MDL > C, Interim Monitor, Go To Step 5			Y			0.0037		B<C, Step 7			Effluent MDL > C, Interim Monitor		
86	Fluoranthene	370	Y	Y	0.05		All ND MDL<=C, MDL=MEC	0.05	MEC<C, go to Step 5	Y			0.011		B<C, Step 7					
87	Fluorene	14000	Y	Y	0.1		All ND MDL<=C, MDL=MEC	0.1	MEC<C, go to Step 5	Y			0.00008		B<C, Step 7					
88	Hexachlorobenzene	0.00077	Y	Y	0.1		MDL > C, Interim Monitor, Go To Step 5			Y			0.0000202		B<C, Step 7			Effluent MDL > C, Interim Monitor		
89	Hexachlorobutadiene	50	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.3		FALSE	No detected value of B, Step 7					
90	Hexachlorocyclopentadiene	17000	Y	Y	5		All ND MDL<=C, MDL=MEC	5	MEC<C, go to Step 5	Y	Y	0.31		FALSE	No detected value of B, Step 7					
91	Hexachloroethane	8.9	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.2		FALSE	No detected value of B, Step 7					
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.05		MDL > C, Interim Monitor, Go To Step 5			Y			0.004		B<C, Step 7			Effluent MDL > C, Interim Monitor		
93	Isophorone	600	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.3		FALSE	No detected value of B, Step 7					
94	Naphthalene	No Criteria	Y	Y	0.2		No Criteria	0.2	No Criteria	Y			0.0023		No Criteria	No Criteria		Uo - No Criteria		
95	Nitrobenzene	1900	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.25		FALSE	No detected value of B, Step 7					
96	N-Nitrosodimethylamine	8.1	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.3		FALSE	No detected value of B, Step 7					
97	N-Nitroso-n-Propylamine	1.4	Y	Y	5		MDL > C, Interim Monitor, Go To Step 5			Y	Y	0.001		FALSE	No detected value of B, Step 7			Effluent MDL > C, Interim Monitor		
98	N-Nitrosodiphenylamine	16	Y	Y	1		All ND MDL<=C, MDL=MEC	1	MEC<C, go to Step 5	Y	Y	0.001		FALSE	No detected value of B, Step 7					
99	Phenanthrene	No Criteria	Y	Y	0.05		No Criteria	0.05	No Criteria	Y			0.0061		No Criteria	No Criteria		Uo - No Criteria		
100	Pyrene	11000	Y	Y	0.05		All ND MDL<=C, MDL=MEC	0.05	MEC<C, go to Step 5	Y			0.0051		B<C, Step 7					
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	5		No Criteria	5	No Criteria	Y	Y	0.3		FALSE	No Criteria	No Criteria		Uo - No Criteria		
102	Aldrin	0.00014	Y	Y	0.005		MDL > C, Interim Monitor, Go To Step 5			Y					No detected value of B, Step 7			Effluent MDL > C, Interim Monitor		
103	alpha-BHC	0.013	Y	Y	0.01		All ND MDL<=C, MDL=MEC	0.01	MEC<C, go to Step 5	Y			0.000496		B<C, Step 7					
104	beta-BHC	0.046	Y	Y	0.005		All ND MDL<=C, MDL=MEC	0.005	MEC<C, go to Step 5	Y			0.000413		B<C, Step 7					
105	gamma BHC	0.063	Y	Y	0.01		All ND MDL<=C, MDL=MEC	0.01	MEC<C, go to Step 5	Y			0.0007034		B<C, Step 7					
106	delta-BHC	No Criteria	Y	Y	0.01		No Criteria	0.01	No Criteria	Y			0.000042		No Criteria	No Criteria		Uo - No Criteria		
107	Chlordane (303d listed)	0.00059	Y	Y	0.02		MDL > C, Interim Monitor, Go To Step 5			Y			0.00018		B<C, Step 7			Effluent MDL > C, Interim Monitor		
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000086		B<C, Step 7			Effluent MDL > C, Interim Monitor		
109	4,4'-DDE (linked to DDT)	0.00059	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000093					Effluent MDL > C, Interim Monitor		
110	4,4'-DDD	0.00084	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000313		B<C, Step 7			Effluent MDL > C, Interim Monitor		
111	Dieldrin (303d listed)	0.00014	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000264					Effluent MDL > C, Interim Monitor		
112	alpha-Endosulfan	0.0087	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000031		B<C, Step 7			Effluent MDL > C, Interim Monitor		
113	beta-Endosulfan	0.0087	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000069		B<C, Step 7			Effluent MDL > C, Interim Monitor		
114	Endosulfan Sulfate	240	Y	Y	0.01		All ND MDL<=C, MDL=MEC	0.01	MEC<C, go to Step 5	Y			0.0000819		B<C, Step 7					
115	Endrin	0.0023	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000036		B<C, Step 7			Effluent MDL > C, Interim Monitor		
116	Endrin Aldehyde	0.81	Y	Y	0.01		All ND MDL<=C, MDL=MEC	0.01	MEC<C, go to Step 5						No detected value of B, Step 7					
117	Heptachlor	0.00021	Y	Y	0.01		MDL > C, Interim Monitor, Go To Step 5			Y			0.000019		B<C, Step 7			Effluent MDL > C, Interim Monitor		
118	Heptachlor Epoxide	0.00011	Y	N		0.1		0.1	Y	Y			0.00002458		B<C, Step 7		Y	MEC => C [0.100000 ug/l vs 0.000110 ug/l]		
119-129	PCBs sum (2)	0.00017	Y	N		0.000651		0.000651	Y						No detected value of B, Step 7		Y	MEC => C [0.000651 ug/l vs 0.000170 ug/l]	0.00341	0.00170
126	Toxaphene	0.0002	Y	Y	0.05		MDL > C, Interim Monitor, Go To Step 5								No detected value of B, Step 7			Effluent MDL > C, Interim Monitor		
	Tributyltin	0.01					No Effluent Data			Y	Y	0.001		FALSE	No detected value of B, Step 7			Ud-No Effluent Data		
	Total PAHs	15	Y	Y	0.1		All ND MDL<=C, MDL=MEC	0.1	MEC<C, go to Step 5	Y			0.28	E MDL>C, Monitoring Required	B<C, Step 7	0				

a. The most stringent of salt and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.

c. Criteria for copper is taken from CTR. CTR criteria for copper is expressed as dissolved metals. The copper criteri in the table is adjusted by dividing a factor of 0.83 to convert the dissolved to total metal concentration.

The freshwater criteria for Selenium is taken from NTR.

d. Acronyms in the "Final Result" column: Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria

Uo: No criteria available

IM: Interim monitoring is required

Chevron Richmond Refinery
Attachment 3
WQBEL Calculations

Beginning			Acute ECA	Chronic ECA	Human Health ECA	CV, by SIP Guidance	Acute ECA (Sigma^2)	Acute ECA Sigma	Chronic ECA (Sigma^2)	Chronic ECA Sigma	Acute ECA Multiplier	Chronic ECA Multiplier	Acute LTA	Chronic LTA	AMEL Sigma^2	AMEL Sigma	MDEL Multiplier	AMEL Multiplier	MDEL	AMEL	MDEL Human Health	AMEL Human Health	Daily Maximum	Monthly Average		
	Constituent name	RP?																								
A	B	C	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG			AH	AI	AJ	AK	AL	AM	AN		
1	Antimony																									
2	Arsenic [b]																									
3	Beryllium																									
4	Cadmium [b]																									
5a	Chromium (III)																									
5b	Chromium (VI) [b]																									
6	Copper [c]	Y	35.7813253	15.29939759	No HH Criteria	0.548939	0.26339	0.513215	0.072631	0.269501	0.345749	0.554026	12.37134	8.476263	0.072631	0.269501	2.892274	1.502325	24.516	12.734			24.52	12.73		
7	Lead [b]	Y	409.8850922	9.053207259	No HH Criteria	0.6	0.307485	0.554513	0.086178	0.29356	0.321083	0.527433	131.6072	4.774964	0.086178	0.29356	3.114457	1.552425	14.871	7.413			14.87	7.41		
8	Mercury (303d listed) [b]	Y	2.1	0.025	0.051	1.192027	0.884151	0.940293	0.303973	0.551337	0.174637	0.322896	0.366737	0.008072	0.303973	0.551337	5.726167	2.127534	0.046	0.017	0.13726	0.05100	0.0462	0.0172		
9	Nickel [b]	Y	714.1747475	49.52828283	45966.7	0.282021	0.079531	0.276643	0.019689	0.140317	0.545962	0.728671	389.9122	36.08981	0.019689	0.140317	1.63163	1.247295	66.103	45.015	67501.23857	45966.70000	66.10	45.01		
10	Selenium (303d listed) [b]	Y	20	5	No HH Criteria	0.413337	0.157728	0.39715	0.041825	0.204511	0.429597	0.634587	8.591949	3.172934	0.041825	0.204511	2.327761	1.370957	7.386	4.350			7.39	4.35		
11	Silver [b]																									
12	Thallium																									
13	Zinc [b]																									
14	Cyanide [b]	Y	6.4	6.4	2199996.4	0.445633	0.181145	0.425611	0.048454	0.220123	0.406814	0.613988	2.603608	3.929526	0.048454	0.220123	2.458127	1.401966	6.400	3.650	3857348.28662	2199996.40000	6.40	3.65		
15	Asbestos																									
16	2,3,7,8 TCDD																									
	dioxin-TEQ (303d listed)	Y			0.000000014	0.6	0.307485	0.554513	0.086178	0.29356	0.321083	0.527433			0.086178	0.29356	3.114457	1.552425	0.000	0.000	0.00000002809	0.000000014	0.00	0.00		
17	Acrolein																									
18	Acrylonitrile																									
19	Benzene																									
20	Bromoform																									
21	Carbon Tetrachloride																									
22	Chlorobenzene																									
23	Chlorodibromomethane																									
24	Chloroethane																									
25	2-Chloroethylvinyl ether																									
26	Chloroform																									
27	Dichlorobromomethane																									
28	1,1-Dichloroethane																									
29	1,2-Dichloroethane																									
30	1,1-Dichloroethylene																									
31	1,2-Dichloropropane																									
32	1,3-Dichloropropylene																									
33	Ethylbenzene																									
34	Methyl Bromide																									
35	Methyl Chloride																									
36	Methylene Chloride																									
37	1,1,2,2-Tetrachloroethane																									
38	Tetrachloroethylene																									
39	Toluene																									
40	1,2-Trans-Dichloroethylene																									
41	1,1,1-Trichloroethane																									
42	1,1,2-Trichloroethane																									
43	Trichloroethylene																									
44	Vinyl Chloride																									
45	2-Chlorophenol																									
46	2,4-Dichlorophenol																									
47	2,4-Dimethylphenol																									
48	2-Methyl- 4,6-Dinitrophenol																									
49	2,4-Dinitrophenol																									
50	2-Nitrophenol																									
51	4-Nitrophenol																									
52	3-Methyl 4-Chlorophenol																									
53	Pentachlorophenol																									
54	Phenol																									
55	2,4,6-Trichlorophenol																									
56	Acenaphthene																									
57	Acenaphthylene																									
58	Anthracene																									
59	Benzidine																									

Chevron Richmond Refinery
Attachment 3
WQBEL Calculations

Beginning			Acute ECA	Chronic ECA	Human Health ECA	CV, by SIP Guidance	Acute ECA (Sigma^2)	Acute ECA Sigma	Chronic ECA (Sigma^2)	Chronic ECA Sigma	Acute ECA Multiplier	Chronic ECA Multiplier	Acute LTA	Chronic LTA	AMEL Sigma^2	AMEL Sigma	MDEL Multiplier	AMEL Multiplier	MDEL	AMEL	MDEL Human Health	AMEL Human Health	Daily Maximum	Monthly Average		
	Constituent name	RP?																								
60	Benzo(a)Anthracene																									
61	Benzo(a)Pyrene																									
62	Benzo(b)Fluoranthene																									
63	Benzo(ghi)Perylene																									
64	Benzo(k)Fluoranthene																									
65	Bis(2-Chloroethoxy)Methane																									
66	Bis(2-Chloroethyl)Ether																									
67	Bis(2-Chloroisopropyl)Ether																									
68	Bis(2-Ethylhexyl)Phthalate																									
69	4-Bromophenyl Phenyl Ether																									
70	Butylbenzyl Phthalate																									
71	2-Chloronaphthalene																									
72	4-Chlorophenyl Phenyl Ether																									
73	Chrysene																									
74	Dibenzo(a,h)Anthracene																									
75	1,2-Dichlorobenzene																									
76	1,3-Dichlorobenzene																									
77	1,4-Dichlorobenzene																									
78	3,3 Dichlorobenzidine																									
79	Diethyl Phthalate																									
80	Dimethyl Phthalate																									
81	Di-n-Butyl Phthalate																									
82	2,4-Dinitrotoluene																									
83	2,6-Dinitrotoluene																									
84	Di-n-Octyl Phthalate																									
85	1,2-Diphenylhydrazine																									
86	Fluoranthene																									
87	Fluorene																									
88	Hexachlorobenzene																									
89	Hexachlorobutadiene																									
90	Hexachlorocyclopentadiene																									
91	Hexachloroethane																									
92	Indeno(1,2,3-cd)Pyrene																									
93	Isophorone																									
94	Naphthalene																									
95	Nitrobenzene																									
96	N-Nitrosodimethylamine																									
97	N-Nitrosodi-n-Propylamine																									
98	N-Nitrosodiphenylamine																									
99	Phenanthrene																									
100	Pyrene																									
101	1,2,4-Trichlorobenzene																									
102	Aldrin																									
103	alpha-BHC																									
104	beta-BHC																									
105	gamma-BHC																									
106	delta-BHC																									
107	Chlordane (303d listed)																									
108	4,4'-DDT (303d listed)																									
109	4,4'-DDE (linked to DDT)																									
110	4,4'-DDD																									
111	Dieldrin (303d listed)																									
112	alpha-Endosulfan																									
113	beta-Endosulfan																									
114	Endosulfan Sulfate																									
115	Endrin																									
116	Endrin Aldehyde																									
117	Heptachlor																									
118	Heptachlor Epoxide	Y	0.52977878	0.03577878	0.00087878	0.6	0.307485	0.554513	0.086178	0.29356	0.321083	0.527433	0.170103	0.018871	0.086178	0.29356	3.114457	1.552425	0.059	0.029	0.00176	0.00088				
119-125	**PCBs sum (2)**	Y		0.14000	0.00170	0.60000	0.30748	0.55451	0.08618	0.29356	0.32108	0.52743		0.073841	0.08618	0.29356	3.114457	1.55242	0.22997	0.11463	0.00034	0.00017				
126	Toxaphene																									
	Tributylin																									
	Total PAHs																									

ATTACHMENT G – CHRONIC TOXICITY – DEFINITIONS OF TERMS AND SCREENING PHASE REQUIREMENTS

CHRONIC TOXICITY

DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls; and

4. Concurrent reference toxicant tests.

C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE 1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

TEST SPECIES	(Scientific name)	EFFECT	DURATION	REFER-ENCE
alga	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	3
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	2
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	2
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar -	Strongylocentrotus purpuratus, S. franciscanus); Dendraster excentricus)	percent fertilization	1 hour	2
shrimp	(Americamysis bahia)	percent survival; growth	7 days	3
shrimp	(holmesimysis costata)	percent survival; growth	7 days	2
topsmelt	(Atherinops affinis)	percent survival; growth	7 days	2
silversides	(Menidia beryllina)	larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. USEPA/600/R-95/136. August 1995

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms as specified in 40CFR 136. Currently, this is USEPA/600/4-90/003, July 1994. Later editions may replace this version.

TABLE 2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	(Pimephales promelas)	survival; growth rate	7 days	4
water flea	(Ceriodaphnia dubia)	survival; number of young	7 days	4
alga	(Selenastrum capricornutum)	cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms as specified in 40CFR 136. Currently, this is the third edition, USEPA/600/4-91/002, July 1994. Later editions may replace this version.

TABLE 3

TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†): Marine/Estuarine:	0 4	1 or 2 3 or 4	3 0
Total number of tests:	4	5	3

† The fresh water species may be substituted with marine species if:
1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or
2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.
Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

Attachment H – Form A

STORMWATER / BALLAST WATER ALLOCATION PROCEDURE

This procedure uses a bankbook to inventory stormwater. Any stormwater in excess of the estimated processed stormwater is inventoried. Stormwater allocations are calculated using the acutaul processed stormwater developed in the attached table.

Definitions:

Dry Weather Season - The months of June to September exclusive of a one-week period following any rainstorm.

Estimated Dry Weather Process Wastewater Flow - The average effluent flowrate during the previous dry weather season.

Stormwater Runoff - The product of the inches of rainfall and the runoff factor.

Estimated Processed Stormwater - The difference between the actual effluent flow rate and the ballast water plus dry weather flow rate.

Stormwater Bankbook - Calculated inventoried stormwater.

Actual Process Stormwater - If the stormwater bankbook is not zero, the acutal process stormwater equals the estimated flow. If the bankbook is zero, the actual processed stormwater is equal to the stormwater runoff for that day plus the bankbook for the previous day.

Attachment H – Form A

TABLE FOR RECORDS OF RAINFALL, STORMWATER RUNOFF, AND BALLAST FLOW

Date	Rainfall (inches)	Storm Runoff Flow (rainfall x runoff factor) Gallons	Ballast Flow in Gallons
1-2			
2-3			
3-4			
4-5			
5-6			
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			
12-13			
13-14			
14-15			
15-16			
16-17			
17-18			
18-19			
19-20			
20-21			
21-22			
22-23			
23-24			
24-25			
25-26			
26-27			
27-28			
28-29			
29-30			
30-31			
31-1			
Total			
Monthly Average			

Attachment H – Form A

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	Rainfall (inch)	Stormwater Runoff (MGD)	Effluent Flow (MGD)	Dry Weather Effluent Flow (MGD)	Estimated Processed Stormwater (MGD)	Stormwater Bankbook (MGD)	Actual Processed Stromwater (MGD)	Ballast Water (MGD)
				Previous Month's Bankbook =				
1								
2								
3								
.								
.								
.								
.								
30								
Total								
Average								
Maximum								

Column (B) = Column (A) X Runoff Factor.
Column (D) = Dry Weather Effluent Flow + Documented Process Water Increment.
Column (E) = Column (C) - Column (D) - Column (H).
Column (F):

Column (F) = Column (F) $_{\text{previous day}}$ + Column (B) - Column (E);
Column (F) = 0, if Column (F) <0.

Column (G):

Column (G) = Column (E), if Column (F) >0;
Column (G) = Column (B) + Column (F) $_{\text{previous day}}$, if Column (F) =0.

Attachment H – Form A

CALCULATION OF STORMWATER AND BALLAST WATER ALLOCATIONS

		Monthly Average Storm Runoff + Ballast Water Flow (expressed in 1000 gallons/day)	x	Allocation Factor (kg /1000 gallons)	=	(kg /day)	+	A.1 Effluent Limits (kg /day)	=	Total Effluent Limit (kg /day)	Year:
30-Day Average Limitation (kg /day)	BOD_5		x	0.098	=		+		=		
	TSS		x	0.079	=		+		=		
	TOC		x	0.22	=		+		=		
	COD		x	0.68	=		+		=		
	O&G		x	0.03	=		+		=		
	Phenol		x	0.00064	=		+		=		
	Total Chrome		x	0.00079	=		+		=		
	Hex Chrome		x	0.00011	=		+		=		

Attachment H – Form A

REPORT FORMAT FOR ADJUSTED EFFLUENT LIMITATIONS

	MAXIMUM DAILY LIMITS						
DATE	BOD (kg/day)	TSS (kg/day)	COD (kg/day)	O&G (kg/day)	PHENOL (kg/day)	TOTAL CHROME (kg/day)	HEX CHROME (kg/day)

Maximum Daily Limit (kg/day) = Effluent Limit B.5 (Daily Max in kg/day) + Stormwater Allocation (Daily Max in kg/day)

Stormwater Allocation (kg/day) = Effluent Limit B.6 (Daily Max in mg/l) x Daily Processed Stormwater (in MGD) x 3.785 liters/gal

Mercury in San Francisco Bay

Proposed Basin Plan Amendment and Staff Report for Revised Total Maximum Daily Load (TMDL) and Proposed Mercury Water Quality Objectives

California Regional Water Quality Control Board
San Francisco Bay Region

August 1, 2006

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APPENDICES

I. Introduction

On September 15, 2004, the San Francisco Bay Regional Water Quality Control Board (Water Board) adopted Resolution No. R2-2004-0082 amending the *Water Quality Control Plan, San Francisco Bay Region* (Basin Plan) to establish a mercury TMDL and implementation plan for San Francisco Bay (the "Mercury TMDL Amendment"). On September 7, 2005, after a series of workshops and consideration of comments from numerous stakeholders, the State Water Resources Control Board (State Board) adopted Resolution No. 2005-0060 ("Remand Order") remanding the Mercury TMDL Amendment to the Water Board for further consideration.

In its Remand Order, the State Board requested specific revisions to the TMDL and associated implementation plan designed to:

- Accelerate achievement of water quality objectives for mercury in the Bay;
- Be more protective of fish and other wildlife;
- Ensure the maximum practical pollution prevention by municipal and industrial waste water dischargers; and
- More clearly incorporate risk reduction measures addressing public health impacts on subsistence fishers and their families.

In response to the remand, the Water Board has revisited the Mercury TMDL Amendment and proposes revisions as set forth in the attached proposed Basin Plan Amendment (Appendix A) and explained in this Staff Report.

1. Project Description

The Project consists of the following changes to the Mercury TMDL Amendment:

1) Establish two numeric mercury water quality objectives for all segments of San Francisco Bay
    - To protect people who consume Bay fish (applies to larger fish consumed by humans): 0.2 mg mercury per kg fish tissue (average wet weight concentration, measured in edible portions (muscle tissue) of trophic level 3 and trophic level 4 fish)
    - To protect aquatic organisms and wildlife (applies to small fish consumed by birds): 0.03 mg mercury per kg fish (average wet weight concentration measured in whole fish 3–5 cm in length)
2) Vacate (i.e. remove) the water column four-day average mercury water quality objective for San Francisco Bay
3) Clarify TMDL targets as follows, in line with objectives stated above:
    - "To protect sport fishing and human health, the average mercury concentration in 60-cm striped bass muscle tissue shall not exceed 0.2 mg mercury per kg fish tissue (wet weight)."

- "To protect aquatic organisms and wildlife, the concentration of mercury shall not exceed 0.03 ppm, wet weight average, in whole fish 3–5 cm in length."
- The bird-egg target is a monitoring target.

4) Revise wasteload allocations and the implementation plan for wastewater sources, including:
   - Clarify the pollution prevention requirements for municipal wastewater
   - Establish more stringent wasteload allocations for municipal wastewater dischargers, to be implemented via individual mass limits and aggregate mass limits and incorporating ten-year interim and twenty-year final implementation schedules
   - Correct the wasteload allocations for industrial wastewater
   - Impose more stringent application of compliance triggers for both industrial and municipal wastewater
   - Require municipal and industrial wastewater and urban stormwater to conduct methylmercury monitoring
5) Add a statement to the dredging section of the Mercury TMDL Amendment clarifying the Water Board's intent that all dredging activities in the Bay comply with the Long Term Management Strategy.
6) Expand risk management activities to include investigation of ways to address public health impacts of mercury on people and communities most likely to be affected by mercury in San Francisco Bay-Delta caught fish, such as subsistence fishers and their families

2. Response to the Remand

In response to the State Board's Remand Order, Water Board staff has prepared a revised Mercury TMDL Amendment. This section summarizes the Remand Order's "Resolveds" and the Water Board's modifications to each.

Resolved 1: Reconsider the TMDL

Remands the amendment to the Basin Plan to incorporate a TMDL for mercury in San Francisco Bay adopted under San Francisco Bay Water Board Resolution No. R2-2004-0082 as corrected by the Executive Officer (Attachment 2) for further consideration consistent with this resolution.

The revised Mercury TMDL Amendment (Appendix A) is consistent with State Board Resolution No. 2005–0060.

Resolved 2: Pollution Prevention (P2)

Directs the San Francisco Bay Water Board to evaluate effective pollution prevention practices used in other states and the pollution prevention or other appropriate programs

of each San Francisco Bay discharger, and their potential effectiveness in reducing mercury in their discharges. The San Francisco Bay Water Board shall revise the TMDL to incorporate requirements for appropriate programs and practices into the TMDL, and require all dischargers to aggressively implement appropriate pollution avoidance practices that are most effective at eliminating or reducing mercury concentrations in their effluent.

The revisions to the San Francisco Bay mercury TMDL incorporated into the proposed Basin Plan Amendment (Appendix A) include reduced municipal wastewater wasteload allocations to reflect pollution prevention actions, and new requirements to implement pollution prevention practices. It is anticipated that aggressive implementation of mercury pollution prevention programs will be necessary in the first 10 years to achieve the interim allocations.

Resolved 3: Individual Wasteload Allocations

Directs the San Francisco Bay Water Board to evaluate and consider the effectiveness of any existing wastewater treatment technology that enhances the removal of mercury. The San Francisco Bay Water Board shall revise the TMDL to establish individual wasteload allocations, after reconsidering the appropriateness of the policy assumptions used by the Regional Water Board to derive the original wasteload allocations. In establishing such wasteload allocations, the San Francisco Bay Water Board shall incorporate provisions that acknowledge the efforts of those point sources whose effluent quality demonstrates good performance, and require improvement by other dischargers.

Revisions to the Mercury TMDL Amendment include a 40 percent reduction in municipal wastewater wasteload allocations. These reductions acknowledge good performance by dischargers already employing advanced treatment technologies by proposing a 20 percent reduction. No reduction is proposed if the loading is less than 0.1 kg/year. No reduction is proposed for industrial wastewater allocations; however revisions include new reporting requirements for these entities that will allow them to confirm that their performance is above average for the U.S. If industrial wastewater dischargers are not achieving above-average performance, the Water Board will consider reducing the load allocation at the next review cycle for this TMDL. Individual wastewater wasteload allocations are provided in Tables 4-v through 4-z in the revised Mercury TMDL Amendment.

Resolved 4: Stay within Regulatory Authority

In carrying out the requirements of this resolution, the Regional Water Board shall comply with the requirements of CWC section 13360 regarding specifying the manner of compliance with Regional Water Board orders.

The Water Code section referenced in the Order reads as follows:

> CWC ARTICLE 6. GENERAL PROVISIONS RELATING TO ENFORCEMENT AND REVIEW
>
> § 13360. Manner of compliance

> (a) No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and the person so ordered shall be permitted to comply with the order in any lawful manner. However, the restrictions of this section shall not apply to waste discharge requirements or orders or decrees with respect to any of the following:

The revised Mercury TMDL Amendment adheres to the above requirements regarding specifying the manner of compliance.

Resolved 5: Methylmercury Monitoring

Directs the San Francisco Bay Water Board to revise the TMDL to require inclusion in the next round of NPDES permits or in the watershed NPDES permits monitoring for, and determination of the relative proportion of, methylmercury in effluent discharges.

Revisions to the mercury TMDL include such methylmercury monitoring requirements.

Resolved 6: Dredging

Directs the San Francisco Bay Water Board to ensure that in-Bay disposal of dredged material containing mercury complies with the requirements of the Long Term Management Strategy Plan (LTMS).

Revisions to the Mercury TMDL Amendment include a clarifying statement that is consistent with the Remand Order.

Resolved 7: Watershed Legacy Mercury Inventory

Directs the San Francisco Bay and Central Valley Water Boards to create a watershed legacy mercury inventory and establish a priority list for addressing these sources. The Water Boards shall also propose potential methods or strategies to remediate priority sources.

Water Board staff is reviewing existing inventories of mercury mine sites and Bay margin cleanup sites, and will set priorities and revise current efforts or initiate efforts accordingly, consistent with our existing Mine and Mineral Producers Program, and site cleanup efforts.

Resolved 8: Pollutant Offset Policy

Directs State Water Board staff to develop a State policy for water quality control that establishes alternative methods to allow dischargers to meet mercury effluent limitations that are directed to preventing contributions to excursions above water quality standards. The policy shall allow dischargers to perform other activities aside from eliminating more mercury from their discharges than they would be required to remove by applicable technology-based effluent limitations. This policy shall require more rigorous activities for:

(a) dischargers not in compliance with their wasteload allocations and/or other applicable criteria or objectives; and (b) dischargers seeking to increase their mercury load. The policy shall include provisions that recognize the efforts of those dischargers who are meeting or outperforming their wasteload allocations, and that recognize the expenditures made by dischargers who are employing higher treatment levels. The policy shall not include requirements that would leverage existing point source discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context "fair share" shall refer to the dischargers' proportional contribution to the impairment. The policy shall also include provisions that prevent localized disparate impacts.

Resolved 8 is an action for State Water Board staff to undertake.

Resolved 9: Reopener for Pollutant Offset Policy

The San Francisco Bay Water Board shall include requirements in the TMDL that any new or modified NPDES permit for dischargers shall contain a reopener to implement Resolved No. 7(sic), above.

The revised Mercury TMDL Amendment includes a reopener for new or modified NPDES permits for wastewater dischargers to incorporate the pollutant offset policy (see Resolved 8).

Resolved 10: Risk Reduction

Directs the San Francisco Bay and Central Valley Water Boards to investigate ways, consistent with their regulatory authority, to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay-Delta caught fish, such as subsistence fishers and their families.

The revised Mercury TMDL Amendment incorporates the above language in the Risk Management section.

Resolved 11: Clarify Bird-egg is a Monitoring Target

Directs the San Francisco Bay Water Board to either develop an appropriate and allocable numerical target that is protective of wildlife, or clarify that the existing bird-egg target is a monitoring target, and that the TMDL will be revised if results of such monitoring reveal that the beneficial uses are not being protected.

The revised Mercury TMDL Amendment includes a wildlife water quality objective for mercury, and a revised wildlife numeric target developed by the USFWS to be protective of wildlife and aquatic life. It clarifies that the bird-egg target is a monitoring target.

Resolved 12: Address Marine 4-day Average Objective

Directs the San Francisco Bay Water Board to revise, withdraw, or take other appropriate action to address the marine waters mercury four-day average water quality objective. In so doing the Regional Water Board shall comply the provisions of Clean Water Act section 303, including but not limited to subparagraph (c)(2)(B), which require the adoption of numerical criteria for toxic pollutants.

The revised Mercury TMDL Amendment includes proposed numeric water quality objectives to protect human health and wildlife, and the rationale for vacating the marine waters 4-day average water quality objective for mercury.

Resolved 13: Revise the TMDL

Directs the San Francisco Bay Water Board to bring a revised TMDL, consistent with this resolution, back to the State Water Board within nine months of the date of this resolution. The San Francisco Bay Water Board shall report its progress in complying with this resolution to the State Water Board within six months of the date of this resolution.

Analysis included in this Staff Report supports the revised TMDL (see Appendix A) consistent with State Board resolution 2005-0060.

3. Compliance with the California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) authorizes the California Resources Agency Secretary to exempt a state agency's regulatory program from preparing an Environmental Impact Report (EIR) or Negative Declaration if certain conditions are met. The Resources Agency Secretary has certified the basin planning process to be functionally equivalent to and therefore exempt from CEQA's requirement to prepare an EIR or Negative Declaration. As part of that certified regulatory program, the Water Board's regulations (at Title 23 Cal. Code of Regs. § 3775 et seq.) describe the environmental documents required for planning actions. This Staff Report and attachments serve as the required environmental documents.

4. Units Used in this Report

parts per million (ppm)	mg/kg (in sediment or fish tissue) and ug/l (in water) are both parts per million (ppm)
cm	centimeter
kg	kilogram
kg/y	kilogram per year
mg	milligram
mg/kg	milligram per kilogram parts per million (ppm)
ug/l	microgram per liter (ppm)

II. Proposed Water Quality Objectives for Mercury in San Francisco Bay

The proposed Basin Plan amendment will add two new mercury water quality objectives and vacate an outdated objective. The new objectives are based on targets the Water Board adopted as part of the Mercury TMDL Amendment. They apply to all segments of San Francisco Bay, including all marine and estuarine waters contiguous to San Francisco Bay.

The new objective to protect people who consume Bay fish applies to fish large enough to be consumed by humans. The objective is 0.2 mg mercury per kg fish tissue (average wet weight concentration measured in the muscle tissue of fish large enough to be consumed by humans).

The proposed objective to protect aquatic organisms and wildlife applies to small fish (3–5 cm in length) commonly consumed by the California least tern, an endangered species. This objective is 0.03 mg mercury per kg fish (average wet weight concentration).

These two new objectives replace the water column four-day average marine mercury objective, which will no longer apply to San Francisco Bay waters.

While it may be a fairly new approach to specify mercury water quality objectives as fish tissue concentrations rather than water column concentrations, this proposed action is not precedent-setting for California. The Central Valley Water Board recently adopted fish tissue mercury objectives concurrently with their mercury TMDLs for Clear Lake and Cache Creek watersheds. The Central Valley Board calculated mercury fish tissue levels needed to protect human health using the same method the United States Environmental Protection Agency (U.S. EPA) used to develop their methylmercury criterion (described below in 'Human Health Objective – Methodology') using local fish consumption rates. They calculated mercury fish tissue levels needed to protect aquatic organisms and wildlife as recommended by USFWS (described below in Proposed Wildlife Objective – Methodology). The details of these objectives are provided on the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/programs/tmdl/.

1. Existing Mercury Objectives and Criteria

Mercury objectives for waters in the San Francisco Bay region vary based on geography, salinity, and beneficial uses. Figure 2-1 depicts the applicability of the objectives listed in Table 2-1. Due to the scale of the map, only the largest marine water bodies are depicted.

The Basin Plan defines the water quality objectives for toxic pollutants in Chapter 3 in the "objectives for specific chemical constituents" section which includes Tables 3-3 and 3-4 (marine and freshwater objectives, respectively). Staff intends to replace the 4-day average marine mercury objective to reflect current scientific information and the latest U.S. EPA and USFWS guidance. However, our actions are limited to the geographic extent of the implementation plan—San Francisco Bay. Mercury water quality objectives for all other water bodies in the San Francisco Bay Region will be updated either as part of a statewide action or as TMDLs are developed for mercury impaired waters.

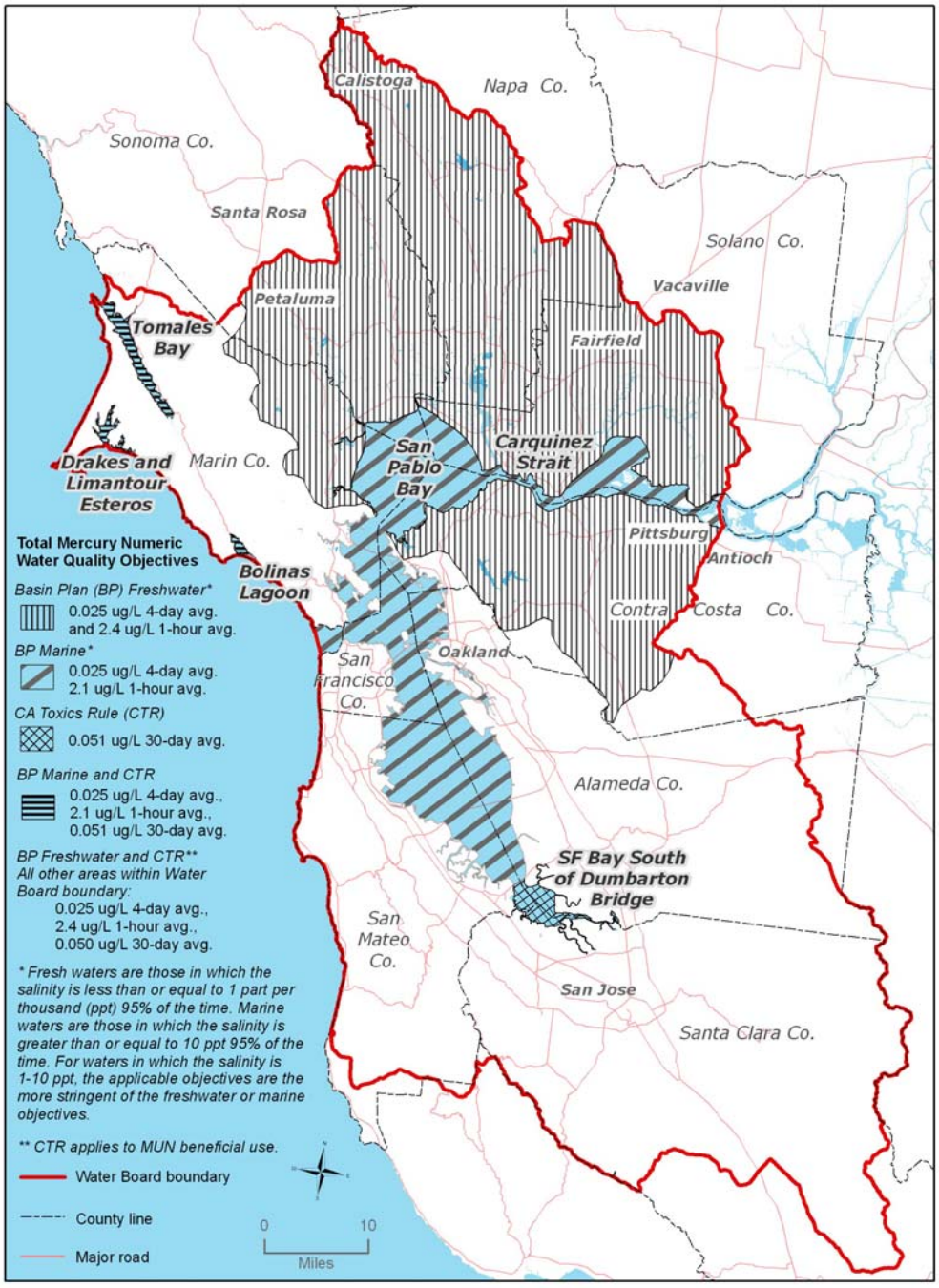

Figure 2-1: Existing Mercury Numeric Water Quality Objectives

Table 2-1. Existing Total Mercury Numeric Water Quality Objectives		
	Existing Basin Plan Marine Objectives (salinity greater than 10 PPT 95% of the time; does not apply to South Bay south of Dumbarton Bridge)	
	Table 3-3 (1986 Table III-2A)	• 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; Note: for waters in which the salinity is between 1 and 10 PPT this more stringent 1-hour objective applies
	The California Toxics Rule (CTR) criterion for human health for consumption of organisms applies to South Bay south of Dumbarton Bridge:	
	§131.38(b)(1)	• 0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only
	Both Basin Plan (BP) objectives and California Toxics Rule (CTR) criterion for human health for consumption of organisms only apply in other marine waters outside of San Francisco Bay (e.g. Tomales Bay, Drake and Limantour Esteros, Bolinas Lagoon, etc.):	
	Table 3-3	• 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; see note above
	§131.38(b)(1)	• 0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only
	Existing Basin Plan Freshwater Objectives (salinity less than 1 PPT 95 percent of the time)	
	Table 3-4 (1986 Table III-2B)	• 0.025 ug/L 4-day average, and • 2.4 ug/L 1-hour average; see note above
(unshaded)	BP and CTR apply in other freshwaters:	
	Table 3-4	• 0.025 ug/L 4-day average, and • 2.4 ug/L 1-hour average; see note above
	§131.38(b)(1) §131.38(D)(4)(b)	• 0.050 ug/l 30-day average; this CTR criteria applies to the "municipal or (MUN)" beneficial use
units: PPT = parts per thousand ug/L = micrograms per liter		

The California Toxics Rule (CTR; CFR 40 §131.38) specifies 0.050 micrograms of mercury per liter of water (i.e., parts per billion, ppb) for consumption of organisms and water, and specifies 0.051 ppb for consumption of organisms only. These standards apply to all waters in the San Francisco Bay Region except San Francisco Bay north of the Dumbarton Bridge and upstream of San Pablo Bay (see 'Regulatory Chronology' below). Although, per 40 CFR 131.38(D)(4)(b), the 0.050 ppb criterion for human health, water and organism consumption only applies to waters with the municipal and domestic supply or "MUN" beneficial use designation in the Basin Plan.

The U.S. EPA developed a human health criterion for methylmercury of 0.3 milligrams methylmercury per kilogram of fish tissue (i.e., parts per million, ppm) because the

consumption of fish is the most important route of mercury exposure to humans (USEPA 2001). This criterion has not yet been formally adopted for California, but staff used this methodology to develop the proposed human health water quality objective.

Regulatory Chronology

The applicability of the Basin Plan objectives (currently defined by salinity) and the CTR criteria (defined by beneficial use) within the San Francisco Bay region is a complicated patchwork because the CTR was promulgated around then-current Basin Plan mercury objectives (previously defined by geographic boundaries).

The 1986 Basin Plan numeric water quality objectives for toxic pollutants were specified in two tables. Table III-2A applied downstream of Carquinez Strait to San Francisco Bay, except for the South Bay below Dumbarton Bridge where "ambient conditions should be maintained until site specific objectives are developed." Table III-2B applied upstream of San Pablo Bay to portions of Marin, Sonoma, Napa, Solano, and Contra Costa counties. The 2000 CTR applies in the remaining portion of the San Francisco Bay region (for which the 1986 Basin Plan did not specify a numeric objective; see 40 CFR 131.38(b)(1) footnote b); the CTR provides two criteria depending on beneficial use: human consumption of organisms only, or human consumption of organisms and water.

U.S. EPA approved the 1995 Basin Plan subsequent to the CTR, which changed the applicability of toxic pollutant objectives from a geographic designation to a salinity threshold of 5 parts per thousand (PPT). The marine objectives were listed in Table 3-3, and freshwater objectives were listed in Table 3-4. The 1995 Basin Plan numbers applied in addition to the CTR (except for the South Bay below Dumbarton Bridge which is excluded from 1986 Basin Plan Table III-2A and 1995 Basin Plan Table 3-3).

Subsequently, the Basin Plan salinity threshold was amended to the current thresholds: a) marine waters are those in which the salinity is equal to or greater than 10 PPT 95 percent of the time, b) freshwaters are those in which the salinity is equal to or less than 1 PPT 95 percent of the time, and c) for waters in which the salinity is between 1 and 10 PPT, the applicable objectives are the more stringent of the freshwater (Table 3-4) or marine (Table 3-3) objectives.

2. Proposed Human Health Objective

The proposed human health water quality objective is the TMDL human health target of 0.2 mg mercury per kg fish.

Methodology

The method used to develop the human health objective for San Francisco Bay fish tissue is derived from the method the U.S. EPA used to develop its national criterion for methylmercury in fish tissue (USEPA 2001). To protect human health, U.S. EPA developed a criterion of 0.3 milligrams methylmercury per kilogram fish tissue (i.e., parts per million, ppm) using Equation 1:

Equation 1:

$$\text{Criterion} = \frac{\text{Body Weight} \times (\text{Reference Dose} - \text{Relative Source Contribution})}{\text{Fish Intake at Trophic Level}}$$

U.S. EPA assumed an adult body weight of 70 kilograms. The reference dose (RfD) in the equation is 0.0001 milligrams mercury per kilogram body weight per day (mg/kg-day). It represents a lifetime daily exposure level at which no adverse effects would be expected. It is derived from mercury levels shown to cause neurological developmental effects in children exposed to mercury prior to birth. In vitro exposure is the most sensitive exposure route and therefore the criterion is intended to protect for in vitro effects "In the studies so far published on subtle neuropsychological effects in children, there has been no definitive separation of prenatal and postnatal exposure that would permit dose-response modeling. That is, there are currently no data that would support the derivation of a child (vs. general population) RfD. This RfD is applicable to lifetime daily exposure for all populations including sensitive subgroups" (USEPA 2001). U.S. EPA's approach for developing its fish tissue criterion includes incorporating a factor of 10 in the RfD. The relative source contribution (0.000027 mg/kg-day) accounts for other sources of mercury exposure (USEPA 2001).

"Fish intake" is the consumption rate in kilograms/day. The relative location of the species in the food chain is called the trophic level (TL). Trophic level 1 plants are consumed by trophic level 2 herbivores, which are consumed by trophic level 3 predators, which are then consumed by trophic level 4 top predators. "Fish Intake at Trophic Level" is discussed in the next section.

Default Fish Consumption Rate

In the *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (USEPA 2000), U.S. EPA recommends a default fish intake rate of 0.0175 kilograms/day (kg/d) to adequately protect the general population of fish consumers, based on the 1994 – 1996 Continuing Survey of Food Intakes by Individuals (CSFII), conducted annually by the U.S. Department of Agriculture. The trophic level (TL) breakouts are TL2 = 3.8 grams/day (g/d); TL3 = 8.0 g/d; and TL4 = 5.7 g/d (USEPA 2000). The 0.0175 kg/d rate for the general adult population is protective of the majority of the population; it is the 90th percentile of the consumption rate for those who do and do not consume fish. In other words, 90 percent of the general population consumes less than 0.0175 kg/d. U.S. EPA considers the 0.0175 kg/d to be indicative of the average consumption among sport fishers (USEPA 2000).

Participants in the CSFII provided two non-consecutive, 24-hour days of dietary data collected by an in-home interviewer. Interviewers provided participants with an instructional booklet and standard measuring cups and spoons to assist them in adequately describing the type and amount of food ingested. One limitation of the 1994-96CSFII surveys is that individual food consumption data were collected for only two days—a brief period which does not necessarily depict "usual intake." Usual dietary intake is defined as "the long-run average of daily intakes by an individual." Despite the

limitations, the CSFII is considered one of the best sources of current information on consumption of water and fish-containing foods (USEPA 2000).

Substituting the above values and the default fish intake rate (0.0175 kg/d) into Equation 1 yields the U.S. EPA methylmercury criterion of 0.3 ppm mercury in fish, rounded to one significant figure, as was done by U.S. EPA (USEPA 2001).

San Francisco Bay Fish Consumption Rate

In their methodology document, U.S. EPA "suggests a four preference hierarchy for States and authorized Tribes to follow when deriving consumption rates that encourages use of the best local, State, or regional data available. A thorough discussion of the development of this policy method and relevant data sources is contained in the Exposure Assessment TSD. The hierarchy is also presented here because EPA strongly emphasizes that States and authorized Tribes should consider developing criteria to protect highly exposed population groups and use local or regional data over the default values as more representative of their target population group(s). The four preference hierarchy is: (1) use of local data; (2) use of data reflecting similar geography/population groups; (3) use of data from national surveys; and (4) use of EPA's default intake rates" (USEPA 2000).

Detailed local consumption data is available for San Francisco Bay. A very comprehensive consumption survey was conducted in 1998 and 1999 and is documented in the report entitled, "Technical Report: San Francisco Bay Seafood Consumption Report" (CDHS & SFEI 2000). The study methodology was developed with the assistance of an advisory task force, special consultants and outside reviewers, and employed face-to-face interviews with anglers and use of an 8-ounce fish fillet model. This methodology (technical review, face-to-face interviews, and consistent measurements) is comparable to the CSFII study methodology. Therefore, this study is appropriate to use as a basis to protect people who consume fish from San Francisco Bay.

To protect the Bay's beneficial use of sport fishing, mercury concentrations in Bay fish should be low enough so people who choose to eat Bay fish can do so on a regular basis. Roughly 170,000 sport and subsistence fishers currently choose to consume Bay fish (USEPA 1997). According to a survey of these fishers, the median consumption rate for all consumers of Bay fish was zero because about half of consumers did not eat Bay fish in the four weeks prior to being interviewed (CDHS & SFEI 2000). Both the national study, which U.S. EPA references for default consumption values, and the San Francisco Bay consumption study found a median consumption rate of zero. The San Francisco Bay results indicate that 90 percent eat less than 0.016 kg/d, a surprising finding because it is reasonable to assume that Bay Area residents, like many Pacific Rim communities, consume more fish than the general U.S. population (90^{th} percentile of 0.0175 kg/d). Therefore, Water Board staff propose to use the 95^{th} percentile from the San Francisco Bay consumption study; 95 percent eat less than 0.032 kg/d. The data were adjusted for avidity bias: in an otherwise random sampling design, avidity bias describes the increase in probability that data will be gathered from anglers fishing very frequently, as opposed to anglers who fish only rarely.

Substituting this fish intake rate (0.032 kg/d) into the equation above results in a fish tissue criterion of 0.2 ppm mercury, rounded to one significant figure, as was done by U.S. EPA (USEPA 2001). Therefore, **0.2 parts per million (ppm), wet weight, mercury in fish is selected to protect human health.**

The estimated 170,000 Bay Area sport and subsistence fishers (USEPA 1997) represent about 3 percent of the roughly 6.5 million people who live in the Bay Area (CDFFP 1999; CDF 2000). Because the selected objective protects the 95th percentile of these fishers, it protects well over 99 percent of the Bay Area's existing population.

An individual fish consumer's mercury exposure is a function of the type of fish consumed, the amount consumed, and the frequency of consumption. Because the objective is derived from a level of daily exposure assumed to occur over an entire lifetime, some fish above the objective could be consumed if others were well below it.

San Francisco Bay Fish Consumed

This section discusses a protective public policy for how the Water Board will determine compliance with the 0.2 mg mercury per kg fish tissue objective.

Species, trophic level, size of fish, and consumption rate affect mercury intake. The *Bay Seafood Consumption Report* indicates that about 78 percent of sport and subsistence fishers report consuming striped bass (CDHS & SFEI 2000), although the relative proportion of striped bass within their diet is unknown. The 78 percent was in response to the general question, "do you eat this fish" which was asked for three species (white croaker, leopard shark and striped bass). This contrasts to the more specific question, "have you eaten this fish in the last four weeks" which was asked for these three species of fish, plus10 additional fish species, and crab, clams and mussels (CDHS & SFEI 2000). The *Bay Seafood Consumption Report* does not provide shellfish consumption rates.

Commonly consumed fish species are discussed in some detail (CDHS & SFEI 2000). The report provides the percent of anglers who recently consumed Bay fish species, but it does not provide the amount consumed of each species. The five most commonly consumed species are striped bass, California halibut, jacksmelt, white sturgeon, and white croaker. These five fish were consumed by 15–55 percent of anglers. Less than 10 percent of anglers reported consuming shiner surfperch, leopard shark, or other fish. **Therefore, staff proposes that the water quality objective apply to the five most commonly consumed Bay fish**.

The dietary habits of these adult fish reportedly consumed by anglers and their corresponding trophic level are indicated on Table 2-2. As expected, humans eat relatively high on the food chain; jacksmelt is trophic level 3, and striped bass, halibut, sturgeon, and white croaker are trophic level 4.

Table 2-2. Trophic Level of Fish Species Caught in RMP Sampling		
Species	**Adult Diet**	**Trophic Level**
striped bass (Morone saxatilis)	Northern anchovy, shiner perch, Bay shrimp, striped bass young of the year, and herring. Diet varies greatly with location in the Bay and Delta	4
California halibut (Paralichthys californicus)	Pacific sardine, northern anchovy, white croaker, topsmelt, killifish, CA market squid, crustaceans	4
jacksmelt (Atherinopsis californiensis)	Algae (Ulothrix spp., Melosira monoiliformis, Enteromorpha spp.), copepods, mysids, cirripedian nauplius larvae, small northern anchovy, gammarid amphipods, jacksmelt eggs, heteronereid polychaetes, sessile diatoms, foraminifera	3
white sturgeon (Acipenser transmontanus)	Fish, fish eggs (herring), shellfish, crayfish, various aquatic invertebrates, clams, amphipods, and shrimp	4
white croaker (Genyonemus lineatus)	Wide variety of fish (mostly northern anchovy), squid, octopus, polychaetes, crabs, clams, detritus and dead organisms	4
leopard shark (Triakis semifasciata)	Cancer crabs, innkeeper worms, grasped crabs, squid, Bay shrimp, ghost shrimp, clams, fish (such as anchovies), fish eggs, octopus spp.	4
shiner perch (Cymatogaster aggregata)	Gammarid amphipods comprise bulk of year round diet in SFB, also algae, cumaceans, cyclopoid copepods, bivalve mollusks, polychaetes, smelt eggs, small shiner	3
citation: species and adult diet from Table 1, *Contaminant Concentrations in Fish from San Francisco Bay, 1997* (SFEI 1999)		

The San Francisco Bay Regional Monitoring Program (RMP) conducts fish tissue sampling and analysis in San Francisco Bay every three years. The RMP catches and analyzes a number of different fish species from all parts of the Bay. Targeted fish size classes are based on legal limits, U.S. EPA (2000) guidance, and growth curves where available (SFEI 2003). Fish fillets for pollutant analysis are prepared in a fashion similar to the typical culinary preparation for each species. White croaker are prepared using muscle with skin. Shiner surfperch and jacksmelt are prepared for compositing by removing heads, tails, and guts, leaving muscle with skin and skeleton to be included in the composites. Leopard shark, striped bass, halibut, and sturgeon are prepared using muscle tissue without skin (SFEI 2003). The RMP fish program analysis plan pertaining to the five most commonly consumed Bay fish is summarized in Table 2-3 (SFEI 2003).

Table 2-3. RMP Fish Sampling Program					
Species	Striped Bass *Morone saxatilis*	California Halibut *Paralichthys californicus*	Jacksmelt *Atherinopsis californiensis*	White Sturgeon *Acipenser transmontanus*	White Croaker *Genyonemus lineatus*
RMP Fish Sampling Plan					
Size classes	3	2	1	2	1
No. fish per composite	3	3	5	3	5
No. composites (approximate)	10	3	15	4	15
Size class range (cm)	Small (S): 45–59 Medium: 60–82 Large (L): >82*	S: 51–82 L: 84–98	21–30	S: 117–133 L: 134–183	20–30
Tissue sampled (edible portion)	muscle without skin	muscle without skin	muscle with skin and skeleton	muscle without skin	muscle with skin
Proposed Fish Evaluation Length					
Evaluation length	60	75	25	135	25

To provide sufficient data to evaluate the Bay-wide average mercury concentration, we propose that several composite samples of each species be caught and analyzed individually for mercury (see Table 2-3 for approximate numbers of fish per composite, and numbers of composites, per species). In the past, it has been relatively easy to catch striped bass in the small and medium size ranges. It has been difficult to catch striped bass in the large size category (larger than 82 cm) so there is the concern that not enough could be caught in the future to provide a large enough sample size. The proposed "evaluation length" in Table 2-3 is either the smallest length of the largest class size sampled (striped bass, sturgeon) or the average size (other fish), rounded to the nearest 5 cm.

For some species, the mercury concentration in fish has been shown to be proportional to the length of the fish. One approach for evaluating average concentrations is to plot mercury concentration against fish length, for each species, and compute the equation of the best fitting line through the data (Wiener et al. 2003; SFEI 1999). If a statistically significant linear relationship between mercury concentration and length can be established for a fish species, the equation for the linear fit should be evaluated at the

"evaluation length" specified in Table 2-3 to compute the average mercury concentration for the species. If a relationship between fish length and concentration cannot be established for a specific species, then the average fish mercury concentration for fish up to the length specified in Table 2-3 should be determined. The average fish mercury concentrations for the five species should be averaged and compared to the human health water quality objective. Staff does not propose a weighted average calculation because sufficient relative consumption data for each species is unavailable. The proposed method of determining compliance is protective of human health because four of the five species are trophic level 4.

Human Health Water Quality Objective

The proposed objective to protect humans who consume Bay fish is 0.2 mg mercury per kg fish tissue (average wet weight concentration measured in the edible portion of trophic level 3 and trophic level 4 fish), in larger fish consumed by humans. Compliance shall be determined by analysis of the edible portion of the five most commonly consumed fish (60–cm striped bass muscle without skin, 75–cm California halibut muscle without skin, 25-cm jacksmelt muscle with skin and skeleton, 135-cm white sturgeon muscle without skin, and 25-cm white croaker muscle with skin).

3. Proposed Aquatic Organisms and Wildlife Objective

The proposed water quality objective to protect aquatic organisms and wildlife is the revised Mercury TMDL Amendment's alternative wildlife monitoring target of 0.03 mg mercury per kg fish.

Whereas fish consumption accounts for only a portion of most human diets, some wildlife depend entirely on Bay fish or other aquatic organisms for their food. Numerous studies document mercury accumulation within the aquatic food web and its toxic effects on birds (Wiener et al. 2003). In the Bay Area, birds feeding on fish and other aquatic organisms are among the most sensitive mercury receptors (CDFG 2002; Davis et al. 2003). Protecting the most sensitive endpoints, that is developing embryos of humans and wildlife, should result in protection of the rest of the aquatic environment from toxicity due to mercury (Cooke et al. 2004). An aquatic organisms and wildlife objective that is calculated to protect birds is also expected to protect other wildlife reliant on the Bay for food (USFWS 2003). The proposed objective to protect aquatic organisms and wildlife is 0.03 mg mercury per kg fish (wet weight, measured in whole fish 3–5 cm in length) in small fish consumed by birds.

Protectiveness of the U.S. EPA Mercury Criterion

The Fish and Wildlife Service evaluated U.S. EPA's fish tissue residue criterion to determine if the criterion developed to protect human health would also protect wildlife, including rare and endangered wildlife (USFWS 2003). USFWS concluded that, if predatory fish at the top of the food web were to contain 0.3 mg mercury per kg fish (U.S. EPA's criterion), most San Francisco Bay wildlife species would be protected. The proposed human health water quality objective of 0.2 mg mercury per kg fish is lower than the U.S. EPA criterion and therefore would protect most wildlife related beneficial uses. The one species that potentially would not be protected is the California least tern, a

federally-listed species. Therefore, a second objective that protects all wildlife is proposed.

Methodology

The wildlife objective is determined using the method discussed in *Evaluation of the Clean Water Act Section 304(a) Human Health Criterion for Methylmercury: Protectiveness for Threatened and Endangered Wildlife in California* (USFWS 2003). Based on the information available in the scientific literature, and given consideration of methylmercury's capacity to bioaccumulate and biomagnify in the aquatic food chain, the USFWS assumed that upper trophic level wildlife species (i.e., predatory birds and mammals) have the greatest inherent risk from exposure to methylmercury. In San Francisco Bay these species include several piscivorous birds. A wildlife value (WV) represents the overall dietary concentration of methylmercury necessary to keep the daily ingested amount at or below a level at which no adverse effects are expected. For each species, the USFWS calculated a WV using body weight, total daily food ingestion rate, and a protective reference dose.

USFWS concluded that mercury concentrations of about 0.03 ppm in smaller prey fish comprising the California least tern diet would be protective for the beneficial use of the preservation of rare and endangered species. (The California least tern generally consumes fish less than 5 centimeters long.) The mercury content of smaller fish more closely relates to California least tern mercury exposure than the mercury content of larger fish.

In a March 2006 letter, the USFWS recommended that the objective apply to "the average mercury concentration in fish 3 to 5 centimeters long" and noted, "Diets of birds can change quickly for many reasons and since this is a Bay-wide target/objective the change allows for better protection and recognizes that other fish in the 3 to 5 cm range may be eaten by least terns besides their "typical" choice. Also, other tern species eat fish in the 3 to 5 cm range and if the 0.03 ppm is limited to the "typical" species eaten by the least tern, the other birds may not be protected" (USFWS 2006).

Aquatic Organisms and Wildlife Water Quality Objective

The proposed objective to protect aquatic organisms and wildlife is 0.03 mg mercury per kg fish (average wet weight concentration measured in whole fish 3–5 cm in length) in small fish consumed by birds.

4. Vacate 4-day Average Marine Water Quality Objective

Basis of the 4-day Average Marine Water Quality Objective

The Basin Plan 4-day average marine mercury water quality objective is based on science over two decades old (USEPA 1985). It is derived from the most sensitive adverse chronic effect, the U.S. Food and Drug Administration's (USFDA's) action level to protect human health for mercury in commercial fish and shellfish (1.0 ppm) (USEPA 1985). As noted (at the bottom of Table 3 in the 1985 document), the saltwater final residual value was calculated by dividing the lowest maximum permissible tissue

concentration (USFDA action level of 1.0 mg mercury per kg fish) by the bioconcentration factor of 40,000 (the relative methylmercury concentration found in the Eastern oyster compared to the total mercury concentration in the water the Eastern oyster lives in), which yields 0.025 ug/l, 4-day average concentration to not be exceeded more than once every three years on the average.

Although the Basin Plan 1-hour average marine and freshwater objectives are also based on this 1985 document, they are derived from toxicity tests on aquatic species themselves. Therefore, staff does not propose to vacate the 1-hour objectives.

Basis of the Proposed Water Quality Objectives

The proposed Basin Plan water quality objectives for mercury in fish tissue to protect human health, wildlife, and aquatic organisms reflect current scientific understanding. These objectives are calculated using on protective reference doses for mercury (see objective methodology sections, above).

The resulting fish tissue concentrations to protect human health (0.3 mg mercury per kg fish as a national default, and for San Francisco Bay is 0.2 mg mercury per kg fish) and to protect aquatic organisms and wildlife (0.03 mg mercury per kg fish) are much more stringent than the USFDA action level (1 mg mercury per kg fish).

In Chapter 3 the Basin Plan specifies that "…objectives to be considered by the Water Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation…" These proposed water quality objectives have been developed in accordance with these requirements. The human health objective is based on the latest U.S. EPA guidance. The aquatic organisms and wildlife objective takes bioaccumulation into consideration, whereas the outdated objective took bioconcentration into consideration (bioconcentration does not account for mercury accumulated from prey).

Conclusions

The 1984 USFDA action level was used as the basis of the 4-day average marine mercury water quality objective, which we propose to vacate. The proposed water quality objectives (0.2 and 0.03 mg mercury per kg fish) reflect the latest scientific information (reference doses for humans and wildlife) and U.S. EPA guidance. The proposed human health objective is five times more stringent than the 1984 USFDA action level of 1.0 mg mercury per kg fish. The proposed aquatic organisms and wildlife objective is much more stringent than the proposed human health objective. Therefore, it is appropriate to vacate the outdated and less stringent 4-day average marine objective.

5. Summary of Revised Mercury Objectives and Criteria

The proposed objectives are shown in Table 2-4 and Figure 2-3.

Table 2-4. Proposed Total Mercury Numeric Water Quality Objectives		
	**SAN FRANCISCO BAY – North of Dumbarton Bridge**	
	Basin Plan Table 3-3B	• 0.2 ppm, average mercury, wet weight, in large fish, • 0.03 ppm, average mercury, wet weight, in small fish, and • 2.1 ug/L 1-hour average
	**SAN FRANCISCO BAY – South Bay south of Dumbarton Bridge**	
	Basin Plan Table 3-3B	• 0.2 ppm, average mercury, wet weight, in large fish, • 0.03 ppm, average mercury, wet weight, in small fish, and
	California Toxics Rule 40CFR131.38(b)(1)	• 0.051 ug/L 30-day average
	**OTHER MARINE WATERS** Both Basin Plan (BP) and California Toxics Rule (CTR) apply in other marine waters outside of San Francisco Bay (salinity greater than 10 PPT 95 percent of the time; e.g. Tomales Bay, Drake and Limantour Esteros, Bolinas Lagoon, etc.):	
	Basin Plan Table 3-3B	• 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; Note: for waters in which the salinity is between 1 and 10 PPT this more stringent 1-hour objective applies
	California Toxics Rule 40CFR131.38(b)(1)	• 0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only
	**FRESHWATER UPSTREAM OF SAN PABLO BAY** Basin Plan Freshwater Objectives apply upstream of San Pablo Bay (salinity less than 1 PPT 95 percent of the time)	
	Basin Plan Table 3-4	• 0.025 ug/L 4-day average, and • 2.4 ug/L 1-hour average; see note below
(unshaded)	**OTHER FRESHWATERS** BP and CTR apply in other freshwaters:	
	Basin Plan Table 3-4	• 0.025 ug/L 4-day average, and • 2.4 ug/L 1-hour average; see note above
	California Toxics Rule 40CFR131.38(b)(1)	• 0.050 ug/L 30-day average; this CTR criteria applies to the "municipal and domestic supply (MUN)" beneficial use
	California Toxics Rule 40CFR131.38(D)(4)(b)	• this CTR criteria applies to the "municipal or (MUN)" beneficial use
units: PPT = parts per thousand ug/L = micrograms per liter		

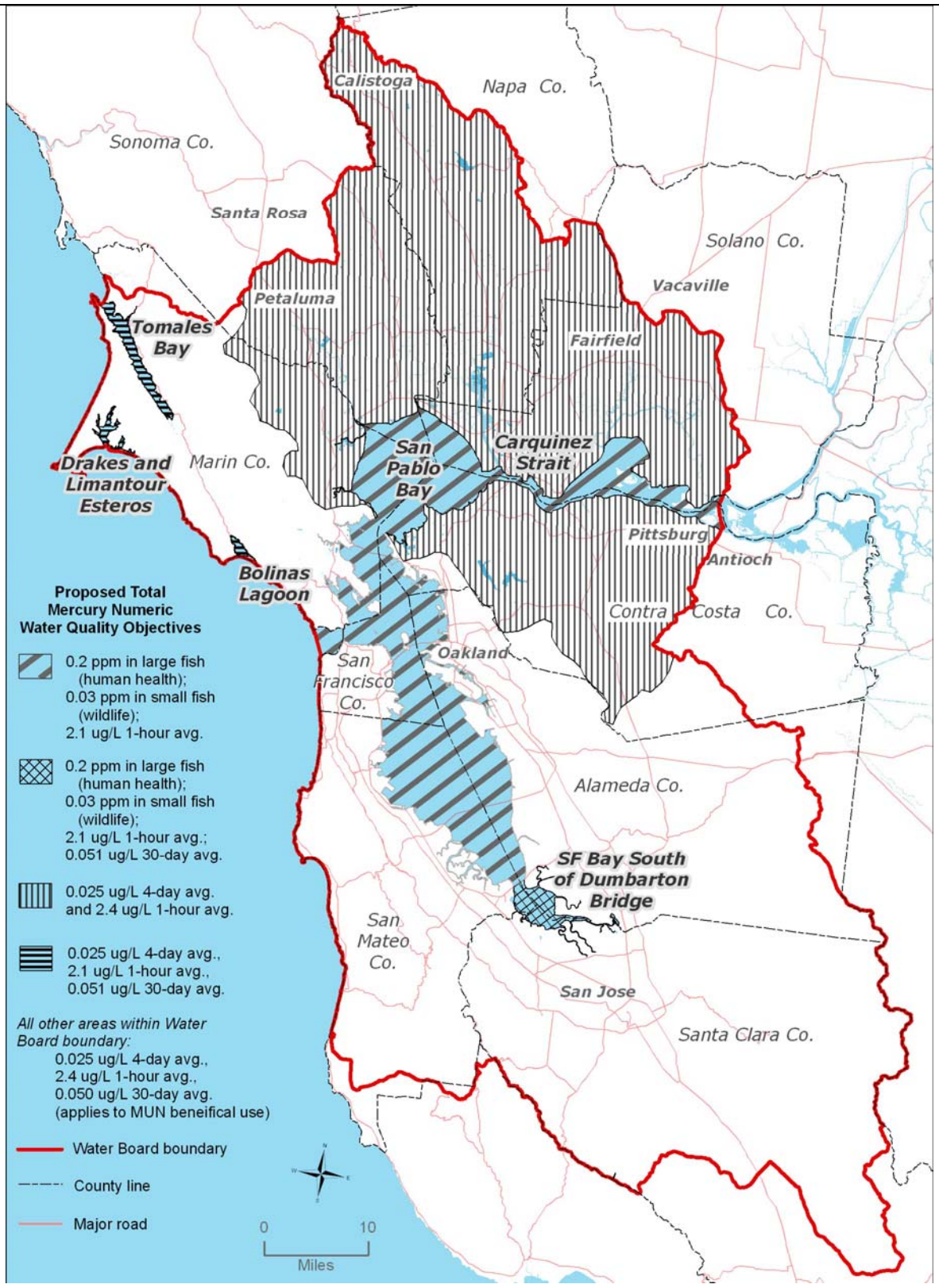

Figure 2-2: Proposed Mercury Numeric Water Quality Objectives

III. Revisions to San Francisco Bay Mercury TMDL

Revisions to the TMDL specifically address issues raised by State Board in the Remand Order. Changes described in this section:

- Clarify human health and wildlife targets;
- Revise wasteload allocations and associated implementation plan requirements for municipal and industrial wastewater dischargers;
- Clarify sections of the implementation plan affecting dredging operations;
- Require monitoring for methylmercury by municipal and industrial wastewater and urban stormwater runoff dischargers;
- Include commitments to address risk management related to human health concerns; and
- Add adaptive implementation components.

1. TMDL Water Quality Targets

Several revisions to the targets section of the TMDL are proposed. These revisions address issues raised by the State Board and are intended to clarify the targets and provide assurances that the targets are consistent with the proposed water quality objectives. These objectives are to protect human health, wildlife, and aquatic organisms. Consequently, a review of the human health and wildlife targets is necessary to ensure that attainment of TMDL targets will result in attainment of water quality standards. The proposed revisions, discussed below, include changing the wildlife target from a safe mercury level in bird eggs to a safe mercury level in the fish these same birds consume. The revised target is equally protective and preferred because it is expressed as a numeric value (0.03 mg mercury per kg 3 -5 cm fish) rather than an upper limit concentration (< 0.5 mg mercury per kg bird egg). Although the human health target remains unchanged (0.2 mg mercury per kg fish), text is proposed to clarify that the target applies to striped bass, a fish commonly consumed by anglers.

Human Health Target

In the Mercury TMDL Amendment, the Water Board adopted the following human health target: “To protect sport fishing and human health, the average fish tissue mercury concentration for typically consumed fish shall not exceed 0.2 mg mercury per kg fish tissue (wet weight).” The proposed human health target now reads as follows: “The human health target is a fish tissue mercury concentration (0.2 mg mercury per kg fish tissue). This target applies to average wet weight fish tissue muscle concentrations in 60 cm long striped bass.” The following clarifying text for the human health TMDL target is also proposed:

> The RMP conducts fish tissue sampling and analysis in San Francisco Bay every three years. Progress toward attainment of the human health target shall be evaluated by tracking mercury concentrations in striped bass, a commonly consumed sport fish with relatively high mercury concentrations. Striped bass are

> routinely caught in three size ranges: 45-59 cm (small), 60-82 cm (medium), and larger than 82 cm (large). To provide sufficient data to evaluate the target, striped bass in the small and medium size ranges should be caught and analyzed. The best functional relationship between mercury concentration and length shall be established for the fish caught, and the resulting equation of fit shall be evaluated at 60 cm to compute the mercury concentration to compare to the human health target. The RMP tracks mercury concentrations in other San Francisco Bay sportfish, such as halibut and jacksmelt. This information will be used to assess overall trends and human health risks.

Since the proposed 40 percent reduction in mercury concentration in 60-cm striped bass (to achieve 0.2 mg mercury per kg fish human health target) is the basis of the revised wasteload and load allocations, the proposed clarifying text does not change the allocation strategy and is consistent with the TMDL analysis. This target is also consistent with the proposed human health objective. Striped bass is a trophic level 4 fish; attainment of the proposed water quality objective shall be measured in trophic level 3 and 4 fish. Therefore, the target provides a measurable condition that demonstrates attainment of water quality standards.

Wildlife Target

Revisions to the wildlife target section of the TMDL include clarifying text 1) restating the wildlife target in terms of the proposed aquatic organism and wildlife water quality objective, 2) recognizing the bird-egg target as a monitoring target, and 3) reiterating that the TMDL will be revised if prey fish monitoring results indicate that beneficial uses are not being protected. The revised wildlife target is stated as follows:

> The wildlife target is a fish tissue mercury concentration (0.03 mg mercury per kg fish). This target applies to average wet weight whole fish concentrations in 3-5 cm length fish.

In the Mercury TMDL Amendment, the Water Board adopted the following wildlife target:

> "To protect wildlife and rare and endangered species, the concentration of mercury in bird eggs shall be less than 0.5 mg mercury per kg wet weight."

Further, the Water Board adopted the following language:

> "The goal of this target is that controllable water quality factors not cause detrimental mercury concentrations in San Francisco Bay bird eggs, which is consistent with the bioaccumulation objective in Chapter 3.… The wildlife target is expressed as a bird egg mercury concentration (less than 0.5 mg mercury per kg - wet weight). The RMP is collaborating with the U.S. Fish and Wildlife Service on long-term monitoring and analysis of bird eggs. Eggs will be collected at several locations throughout San Francisco Bay. The wildlife target will be compared to the computed 99^{th} percentile mercury concentration in eggs.

> In addition to measuring mercury concentrations in bird eggs directly, it is also useful to measure the amount of mercury in bird prey. The Water Board will work with the RMP to develop a long term monitoring program to evaluate mercury concentrations in prey typically consumed by birds. Prey species should include benthic invertebrates and small fish that are typically consumed by piscivorous birds. According to the U.S. Fish and Wildlife Service, the sensitive and endangered California least tern will be protected if the average mercury concentration in the fish it consumes does not exceed 0.03 mg per kg fish tissue (wet weight). Achieving this prey fish concentration is an alternative method of demonstrating attainment of the wildlife target."

Resolved 11 in the State Board Remand Order "directs the San Francisco Bay Water Board to either develop an appropriate and allocable numerical target that is protective of wildlife, or clarify that the existing bird-egg target is a monitoring target, and that the TMDL will be revised if results of such monitoring reveal that the beneficial uses are not being protected."

The primary fish species upon which the California least tern prey are described in a 2003 report by the U.S. Fish and Wildlife Service (USFWS 2003). In a March 2006 letter, the Service observed that most species forage opportunistically, and therefore it would be more protective to define the wildlife water quality objective as "3–5 cm whole fish" rather than limiting the objective to the primary California least tern prey (USFWS 2006). Therefore, the proposed wildlife target expressed as follows: "The wildlife target is a fish tissue mercury concentration (0.03 mg mercury per kg fish). This target applies to average wet weight whole fish concentrations in 3-5 cm length fish."

Whether the wildlife target is a bird egg or prey fish target, the mercury reductions needed for attainment are one and the same: Egg mercury concentrations reflect the pre-laying diet of the parent. The Linkage Analysis section of the 2004 staff report for the Mercury TMDL Amendment (Looker & Johnson 2004b) states:

> "…mercury sources are linked to the proposed bird egg target via mercury in sediment, methylation, accumulation within the aquatic food web, and bird exposure. Additional study is needed to quantify the relationship between the aquatic food web and bird eggs. Available information does not fully explore exposure (e.g., diet), mercury transfer to eggs, and the relationship between mercury levels in eggs and reproduction. In the absence of additional information, however, reductions in bird egg concentrations are assumed, for purposes of this report, to be proportional to reductions in fish tissue mercury."

In the intervening two years, mercury science has not provided information which supports a linkage different from the above (proportional). Reducing mercury loads will reduce bird egg mercury concentrations.

The assumption is that when prey fish consumed by the California least tern contain 0.03 mg mercury per kg fish, mercury concentrations in their eggs will be less than 0.5 mg mercury per kg egg. A greater than 25 percent reduction in California least tern egg mercury concentrations is needed to bring bird egg concentrations down below 0.5 mg mercury per kg egg. The allocations adopted by the Water Board in 2004 call for a 50 percent reduction in mercury sediment concentrations. A 50 percent reduction would result in average bird egg concentrations of about 0.3 ppm (Looker & Johnson 2004b).

Water Board staff proposes to keep the bird egg target as a monitoring target. This is noted in the proposed Basin Plan Amendment as follows: "The RMP is also collaborating with the U.S. Fish and Wildlife Service on long-term monitoring and analysis of bird egg mercury concentrations."

The TMDL will be revised if monitoring or other evidence shows that beneficial uses are not being protected. As stated in the Adaptive Implementation section of the revised Mercury TMDL Amendment (Appendix A),

> The Water Board will adapt the TMDL to incorporate new and relevant scientific information such that effective and efficient actions can be taken to achieve TMDL goals. Approximately every five years, the Water Board will review the San Francisco Bay Mercury TMDL and evaluate new and relevant information from monitoring, special studies, and scientific literature. The reviews will be coordinated through the Water Board's continuing planning program and will provide opportunities for stakeholder participation. Any necessary modifications to the targets, allocations, or implementation plan will be incorporated into the Basin Plan.

The wildlife target is the same as the proposed water quality objective. Therefore, the target provides a measurable condition that demonstrates attainment of water quality standards.

2. Revised Municipal Wastewater Allocations

The Remand Order directs the Water Board to make a number of modifications to sections of the TMDL dealing with wastewater sources. Resolved 2 directs the Water Board "to evaluate effective pollution prevention practices used in other states" and "require all dischargers to aggressively implement appropriate pollution avoidance practices that are most effective." Resolved 3 directs the Water Board "to consider the effectiveness of any existing wastewater treatment technology that enhances the removal of mercury" and to establish individual wasteload allocations" that "incorporate provisions that acknowledge the efforts of those point sources whose effluent quality demonstrates good performance, and require improvement by other dischargers."

Consistent with these directions, Water Board staff, after considering existing or potential pollution prevention and treatment options, proposes revising individual wasteload allocations for municipal facilities. Individual wasteload allocations for facilities employing secondary treatment are adjusted downward by 40 percent. This reduction

magnitude was chosen because it is achievable through the implementation of reasonably foreseeable measures and improvements in treatment technology. It is approximately the same percentage reduction represented by the total maximum yearly load compared to the current estimated yearly total mercury load to the Bay. Resolved 3 of the Remand Order instructs the Water Board to

> …incorporate provisions that acknowledge the efforts of those point sources whose effluent quality demonstrates good performance" (SWRCB 2005).

To accomplish this, for municipal wastewater facilities employing advanced treatment at all times (American Canyon, Fairfield Suisun, Mt. View Sanitary District, Palo Alto, San Jose/Santa Clara, and Sunnyvale), the individual wasteload allocations based on current (2000-2003) load were adjusted downward by 20 percent. Table 3-1 shows the reduced individual wasteload allocations in the column labeled "final allocation."

The midway point between the allocation based on current loading and the final allocation are now shown for each facility in Table 3-1 in the column labeled "interim allocation." Note that no reductions are required for those facilities given an individual wasteload allocation of 0.1 kg/yr or less. No load reductions are required for these small municipal discharges for two reasons. First, the total load from such facilities is less than 1 kg/yr (out of more than 1200 kg/yr reaching the Bay) so requiring a reduction would not result in substantial reductions in overall mercury load to the Bay. Second, the Water Board hypothesizes that these dischargers are already performing as well as or better than their counterparts elsewhere.

Facilities with advanced treatment whose effluent quality already demonstrates good performance are exempt from the requirement to reduce loading beyond the 20 percent reduction. The 20 percent reductions will be realized through implementation of aggressive pollution prevention and other cost-effective mercury reduction methods; the 40 percent reduction for those facilities not employing advanced treatment will be realized through continuation of aggressive pollution prevention and other cost-effective mercury reduction methods, wastewater treatment system improvements, and the implementation of a State-developed offset program that establishes pollutant offsets and credits.

In the course of revisions pursuant to the Remand Order, an error was corrected in the footnotes to the table of individual wasteload allocations for municipal facilities (Table 3-1 in this Staff Report, and Table 4-x in the revised Mercury TMDL Amendment). Footnote 'a' should apply to East Bay Municipal Utilities District for their wet weather facilities instead of East Bay Dischargers Authority.

TABLE 3-1: Individual Wasteload Allocations for Municipal Wastewater Discharges

Permitted Entity	NPDES Permit	Current Load (2000-2003) (kg/yr)	Interim Allocation (kg/yr)	Final Allocation (kg/yr)
American Canyon, City of	**CA0038768**	**0.12**	**0.095**	**0.095**
California Department of Parks and Recreation, Angel Island State Park	CA0037401	0.013	0.013	0.013
Benicia, City of	CA0038091	0.088	0.088	0.088
Burlingame, City of	CA0037788	0.089	0.089	0.089
Calistoga, City of	CA0037966	0.016	0.016	0.016
Central Contra Costa Sanitary District	CA0037648	2.23	1.8	1.3
Central Marin Sanitation Agency	CA0038628	0.18	0.15	0.11
Delta Diablo Sanitation District	CA0038547	0.31	0.25	0.19
East Bay Dischargers Authority Dublin-San Ramon Services District (CA0037613) Hayward Shoreline Marsh (CA0038636) Livermore, City of (CA0038008) Union Sanitary District, wet weather (CA0038733)	CA0037869	3.6	2.9	2.2
East Bay Municipal Utilities District	CA0037702	2.6[a]	2.1	1.5
East Brother Light Station	CA0038806	0.00001	0.000012	0.000012
Fairfield-Suisun Sewer District	**CA0038024**	**0.22**	**0.17**	**0.17**
Las Gallinas Valley Sanitary District	CA0037851	0.17	0.13	0.10
Marin County Sanitary District, Paradise Cove	CA0037427	0.00055	0.00055	0.00055
Marin County Sanitary District, Tiburon	CA0037753	0.0099	0.0099	0.0099
Millbrae, City of	CA0037532	0.052	0.052	0.052
Mountain View Sanitary District	**CA0037770**	**0.034**	**0.034**	**0.034**
Napa Sanitation District	CA0037575	0.28	0.23	0.17
Novato Sanitary District	CA0037958	0.079	0.079	0.079
Palo Alto, City of	**CA0037834**	**0.38**	**0.31**	**0.31**
Petaluma, City of	CA0037810	0.063	0.063	0.063
Pinole, City of	CA0037796	0.055	0.055	0.055
Contra Costa County, Port Costa Wastewater Treatment Plant	CA0037885	0.00072	0.00072	0.00072
Rodeo Sanitary District	CA0037826	0.060	0.060	0.060
Saint Helena, City of	CA0038016	0.047	0.047	0.047
San Francisco, City and County of, San Francisco International Airport WQCP	CA0038318	0.032	0.032	0.032
San Francisco, City and County of, Southeast Plant	CA0037664	2.7	2.1	1.6
San Jose/Santa Clara WPCP	**CA0037842**	**1.0**	**0.80**	**0.80**
San Mateo, City of	CA0037541	0.32	0.26	0.19
Sausalito-Marin City Sanitary District	CA0038067	0.078	0.078	0.078
Seafirth Estates	CA0038893	0.00036	0.00036	0.00036

TABLE 3-1: Individual Wasteload Allocations for Municipal Wastewater Discharges

Permitted Entity	NPDES Permit	Current Load (2000-2003) (kg/yr)	Interim Allocation (kg/yr)	Final Allocation (kg/yr)
Sewerage Agency of Southern Marin	CA0037711	0.13	0.10	0.076
Sonoma Valley County Sanitary District	CA0037800	0.041	0.041	0.041
South Bayside System Authority	CA0038369	0.53	0.42	0.32
South San Francisco/San Bruno WQCP	CA0038130	0.29	0.24	0.18
Sunnyvale, City of	**CA0037621**	**0.15**	**0.12**	**0.12**
US Naval Support Activity, Treasure Island WWTP	CA0110116	0.026	0.026	0.026
Vallejo Sanitation & Flood Control District	CA0037699	0.57	0.46	0.34
West County Agency, Combined Outfall	CA0038539	0.38[c]	0.30	0.23
Yountville, Town of	CA0038121	0.040	0.040	0.04
Total		***17*** [b]	***14*** [b]	***11*** [b]

Bold text indicates advanced treatment
[a] This allocation includes wastewater treatment and all wet weather facilities.
[b] Total differs slightly from the column sum due to rounding.
[c] Mercury monitoring data quality concerns pertaining to this discharger will need to be addressed during the next review.

3. Revised Industrial and Petroleum Refinery Wastewater Allocations

Industrial wastewater and petroleum refinery wastewater allocations have been corrected after detection of a calculation error. Combined, industrial and petroleum refinery wastewater facilities discharge 1.3 kg/yr mercury to the Bay (SFBRWQCB 2006). This estimated current load is selected as the combined wasteload allocations for this group of dischargers.

Individual wasteload allocations for industrial and refinery wastewater facilities based on current loading are shown in Tables 3-2 and 3-3. An error in the industrial and petroleum refinery allocations, which resulted from an inadvertent overstatement of C&H Sugar mercury loads, has been corrected in the revised amendment. In the analysis for the mercury TMDL amendment, the mercury load from that facility was incorrectly computed because we included cooling water in the effluent volume. However, load calculations and allocations should be based only on that portion of effluent *not* used as once-through cooling water. A footnote added to Table 4-z in the revisions to the mercury TMDL amendment clarifies this point. Once-through cooling water is taken directly from the Bay so there is no net increase in mercury load to the Bay due to discharge of cooling water. Correcting the C&H Sugar facility error reduced the

combined industrial and petroleum refinery wastewater mercury load from 3 kg/yr to 1.3 kg/yr.

With this error corrected, revised individual and combined wasteload allocations are still equivalent to estimated current performance, and no load reductions are proposed for two reasons:

1) Total load from industrial facilities is only about 1 kg/yr (out of more than 1200 kg/yr reaching the Bay), so improvements in treatment systems will not result in substantial reductions in overall mercury load to the Bay.
2) The Water Board hypothesizes that these dischargers are already performing as well as or better than their counterparts elsewhere in California and the United States. The Water Board may consider reducing wasteload allocations for this source category in the future pending the outcome of a demonstration called for in the implementation plan that these facilities are already performing better than their counterparts elsewhere in the United States.

For the period 2000-2003, petroleum refineries contributed 68 percent of the mean annual mercury load discharged by industrial and petroleum refinery wastewater facilities. Therefore, individual wasteload allocations for non- petroleum refinery facilities were computed by allocating 32 percent of the total category wasteload allocations (1.3 kg) by the facility fraction of non- petroleum refinery mean mercury loading from 2000 through 2003 (SFBRWQCB 2006). The individual wasteload allocations for petroleum refineries were computed using the same allocation factors employed in the remanded TMDL applied to 68 percent of the total category wasteload allocations of 1.3 kg/yr (SFBRWQCB 2006).

TABLE 3-2: Individual Wasteload Allocations for Industrial (Non-Petroleum Refinery) Wastewater Discharges[c]

Permitted Entity	NPDES Permit	Allocation (kg/yr)
C&H Sugar Co.	CA0005240	0.0013
Crockett Cogeneration	CA0029904	0.0047
The Dow Chemical Company	CA0004910	0.041
General Chemical	CA0004979	0.21[a]
GWF Power Systems, Site I	CA0029106	0.0016
GWF Power Systems, Site V	CA0029122	0.0025
Hanson Aggregates, Amador Street	CA0030139	0.000005
Hanson Aggregates, Olin Jones Dredge Spoils Disposal	CA0028321	0.000005
Hanson Aggregates, Tidewater Ave. Oakland	CAA030147	0.000005
Pacific Gas and Electric, East Shell Pond	CA0030082	0.00063
Pacific Gas and Electric, Hunters Point Power Plant	CA0005649	0.020
Rhodia, Inc.	CA0006165	0.011
San Francisco, City and Co., SF International Airport Industrial WTP	CA0028070	0.051

TABLE 3-2: Individual Wasteload Allocations for Industrial (Non-Petroleum Refinery) Wastewater Discharges[c]

Permitted Entity	NPDES Permit	Allocation (kg/yr)
Southern Energy California, Pittsburg Power Plant	CA0004880	0.0078
Southern Energy Delta LLC, Potrero Power Plant	CA0005657	0.0031
United States Navy, Point Molate	CA0030074	0.013
USS-Posco	CA0005002	0.045
Total		***0.4*** [b]

[a] Data quality concerns pertaining to this discharger will need to be addressed during the next review.
[b] Total differs slightly from the column sum due to rounding.
[c] Wasteload allocations for industrial wastewater discharges do not include mass from once-through cooling water. The Water Board will apply intake credits to once-through cooling water as allowed by law.

TABLE 3-3: Individual Wasteload Allocations for Petroleum Refinery Wastewater Discharges

Permitted Entity	NPDES Permit	Allocation (kg/yr)
Chevron Products Company	CA0005134	0.34
ConocoPhillips	CA0005053	0.13
Martinez Refining Co. (formerly Shell)	CA0005789	0.22
Ultramar, Golden Eagle	CA0004961	0.11
Valero Refining Company	CA0005550	0.08
Total		***0.9***

4. Revised Implementation Plan for Urban Stormwater Runoff

Consistent with Resolved 5 of the Remand Order, Water Board staff has added a provision to the implementation plan section for Urban Stormwater Runoff dischargers requiring methylmercury monitoring through their NPDES permits. The added provision is:

> Monitor levels of methylmercury in discharges.

This addition will support research and investigations designed to determine 1) whether methylmercury is discharged in quantities that would cause environmental concern, and 2) whether there are local effects from methylmercury at locations where discharges may be occurring. Concentrations of methylmercury in urban runoff discharges and in receiving waters will be evaluated during the adaptive management review of the TMDL to determine the appropriate frequency for any continued monitoring.

Additionally, a sentence was removed from page 16 of the proposed Basin Plan amendment that suggested that urban runoff management agencies that comply with "permit requirements shall be deemed to be in compliance with receiving water limitations relative to mercury."

The deleted sentence is, strictly speaking, not necessary in this context. The receiving water limitations referenced in the deleted sentence state that "discharges shall not cause or contribute to violations of applicable water quality standards." Under State Board Order WQ. 99-05, the Water Board must require urban runoff management agencies via their NPDES permits to demonstrate compliance with receiving water limitations through the timely implementation of control measures and other actions designed to effectively reduce pollutants in discharges. By design, the urban stormwater wasteload allocations in the TMDL reflect the loads stormwater discharges must attain to manage their cause and contributions to violations of applicable water quality standards for mercury. The associated implementation plan provides a means for urban runoff management agencies, to the extent it results in attainment of the wasteload allocations, to demonstrate attainment of receiving water limitations.

5. Revised Implementation Plan for Municipal Wastewater

The implementation plan section of the Mercury TMDL Amendment pertaining to municipal wastewater discharges has been revised to improve clarity and respond to specific elements of the Remand Order. Staff has added language clarifying that municipal wastewater individual wasteload allocations shall be implemented in NPDES permits via both individual mass limits and a recalculated aggregate mass limit of 11 kg/yr, which is equal to the sum of individual municipal wastewater wasteload allocations. Staff deleted similar language that referred to the previous load allocation of 17 kg/yr. This change clarifies how the Water Board intends to implement the wastewater wasteload allocations through the NPDES watershed permit.

Staff has added specific language defining the expected time frame for achievement of interim and final individual load allocations as well as the manner in which the Water Board proposes to pursue enforcement if allocations are exceeded. Because load reductions are required, it is necessary to state a timeframe by which the allocations will be achieved. The rationale for the schedule is discussed below under changes to the Adaptive Implementation portion of the amendment. The Water Board will issue a watershed NPDES permit for mercury to all dischargers in Table 3-1 that contains water quality-based effluent limitations consistent with this time schedule for achievement of the interim and final wasteload allocations. In conjunction with approval of the proposed water quality objectives and the revised Mercury TMDL, the Water Board will also seek U.S. EPA approval of the 20-year final NPDES wastewater and stormwater allocation implementation schedules under 40 C.F.R § 131.13, which allows U.S. EPA to approve water quality standard implementation policies.

The new time frame language follows:

> The wasteload allocations for this source category shall be achieved within 20 years, and, as a way to measure progress, interim individual allocations equal to a 20 percent reduction from 2000-2003 annual mass discharge levels shall be achieved within 10 years. These interim allocations, shown in Table 4-x, shall be implemented via individual mass limits and an aggregate mass limit that is the sum of the individual interim allocations, 14 kg/yr. During the initial ten years, individual mass limits shall be the 2000-2003 annual mass discharge levels shown

in Table 4-x, and the aggregate mass limit is the sum of these individual mass discharge levels.

If any aggregate mass limit is exceeded, the Water Board will pursue enforcement actions against those individual dischargers whose mass discharges exceed their individual mass limits.

The last statement reflects the Water Board's intention to pursue enforcement action against dischargers that exceed their individual mass limit only if the aggregate mass limit is exceeded. This is essentially the same statement included in the Mercury TMDL Amendment, but it was revised for clarity and to reflect the revised wasteload allocations and effluent limitations proposed in this amendment.

Concern was expressed in testimony during the State Board hearings about the performance of Bay Area municipal treatment facilities compared to similar facilities in other states. While the required load reductions for this category have obviated the need for a rapid assessment of such comparative performance, the revised Mercury TMDL Amendment does call for an updated assessment of source control measures and treatment technologies aimed at reducing the amount of mercury discharged to the Bay. Staff modified the following language to clarify measures to be implemented through municipal wastewater NPDES permits.

- Develop and implement effective programs that include but are not limited to pollution prevention to control mercury sources and loading, a plan and schedule of actions and effectiveness measures applicable for the term of the permit, based on identification of the largest and most controllable sources and an updated assessment of source control measures and wastewater treatment technologies (the level of effort shall be commensurate with the mercury load and performance of the facility) and quantify the mercury load avoided or reduced;

Consistent with Remand Order Resolved 4, the Water Board will not, where it cannot, specify the manner of compliance with this or other requirements of the Mercury TMDL Amendment. Dischargers are responsible for investigating the sources and strategies for controlling those sources. For example, a major source of mercury to wastewater treatment plants is from dental offices (NACWA 2006). Efforts are already underway by municipal wastewater facilities to manage and reduce the amount of mercury amalgam that is discharged from dental offices into the public collection systems. The target for this program is that 85 percent of dental offices in the region will be participating in an amalgam program five years after full adoption of the TMDL.

The following wastewater requirement is unchanged from the Mercury TMDL Amendment but is now separated from the previously described requirement.

- Develop and implement effective programs to reduce mercury-related risks to humans and wildlife and quantify risk reductions resulting from these activities;

Consistent with Resolved 5 of the Remand Order, Water Board staff modified the following language to require methylmercury monitoring through municipal wastewater NPDES permits. The watershed mercury NPDES permit will require effluent monitoring for methylmercury by individual municipal wastewater dischargers, both to determine if methylmercury is being discharged and to support research and investigations designed to determine 1) whether methylmercury is discharged in quantities that would cause environmental concern, and 2) whether there are local effects from methylmercury at locations where discharges may be occurring. Effluent and receiving water methylmercury data will be evaluated during the adaptive management review of the TMDL to determine the appropriate frequency for any continued monitoring.

- Monitor levels of methylmercury in discharges;
- Prepare an annual report that documents mercury loads from each facility, mercury and methylmercury effluent concentrations, and ongoing source control activities, including mercury loads avoided through control actions.

To further ensure implementation of effective programs to control mercury sources and loading, staff has revised the conditions under which a municipal wastewater discharger will be required to submit an explanatory report regarding exceedance of trigger concentrations or mass. The Mercury TMDL Amendment stated that a discharger would be required to submit a report if its effluent exceeded *both* the individual mercury load allocation and an effluent mercury trigger concentration. The revised language calls for the submittal of a report if *either* the load allocation or trigger concentration is exceeded.

A clarification was added that the mass trigger would be based on a 12-month rolling average. Also, the passage of the proposed Basin Plan amendment describing the trigger program for municipal wastewater treatment dischargers was strengthened in a number of ways. First, it was explicitly stated that a corrective action plan must be implemented and that a report (following a trigger exceedance) must be submitted within 60 days. Second, two additional requirements for the submitted report were added:

- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Last, a passage was added to this portion of the proposed Basin Plan amendment that stated that Water Board's intention to pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances. Figure 3-1 illustrates that both municipal (discussed herein) and industrial (discussed below) individual effluent limits based on individual allocations are enforceable when aggregate limits are exceeded. Figure 3-2 illustrates that monthly concentration and mass triggers provide further accountability and corrective actions for both municipal and industrial dischargers.

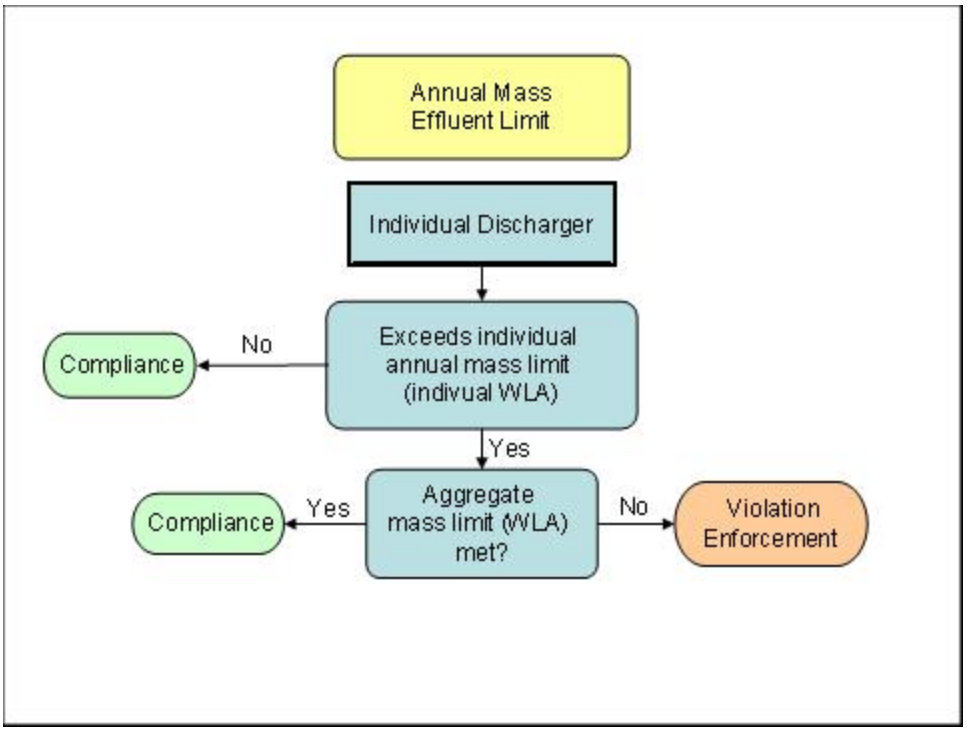

Figure 3-1: Enforceable Individual Wasteload Allocations (WLAs)

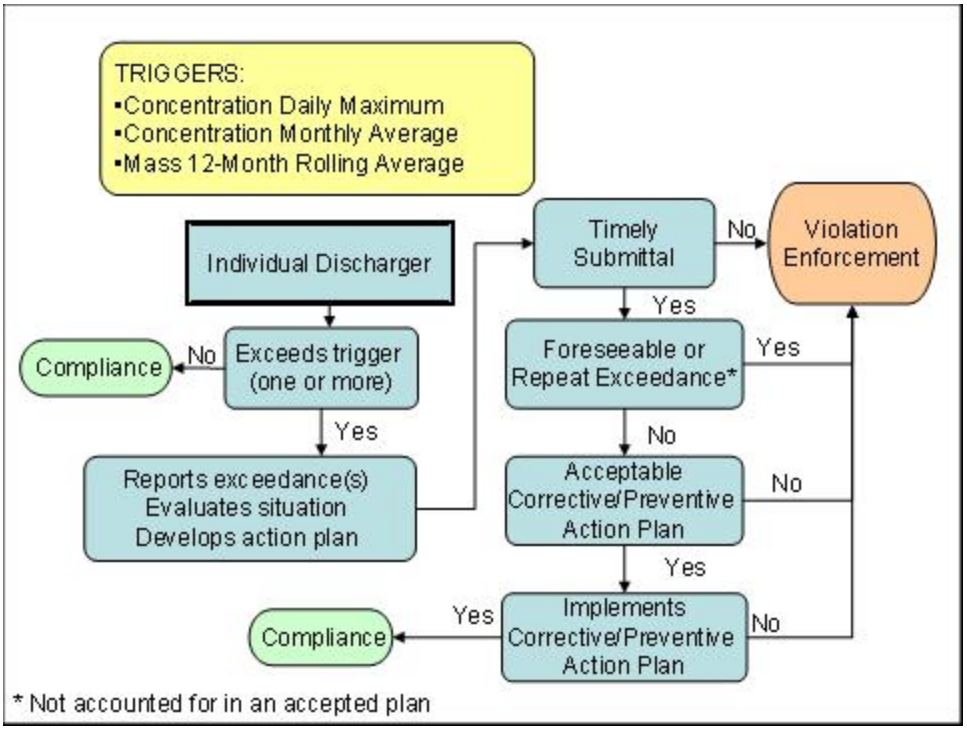

Figure 3-2: Enforceable Triggers

6. Revised Implementation Plan for Industrial Wastewater

The implementation plan section pertaining to industrial and petroleum refinery wastewater discharges has been edited to improve clarity as well as respond to elements of the Remand Order, including the State Board's request that measures addressing risk reduction be more clearly incorporated into the revised amendment. Staff has added language clarifying that individual industrial and petroleum refinery wastewater wasteload allocations shall be implemented both by individual mass limits and by a recalculated aggregate mass limit of 1.3 kg/yr. We have deleted similar language that referred to the previous load allocation of 3 kg/yr.

We have modified the following Basin Plan language to clarify measures to be implemented through industrial wastewater NPDES permits. An additional requirement has been added to demonstrate that discharge levels representing good performance support the Water Board's decision not to require load reductions.

- Develop and implement effective programs to control mercury sources and loading including demonstration that discharge levels represent good performance based on an updated assessment of source control measures and wastewater treatment technologies (the level of effort will be commensurate with the mercury load and performance of the facility) and quantify the mercury load avoided or reduced;
- Develop and implement effective programs to reduce mercury-related risks to humans and wildlife and quantify the risk reductions resulting from these activities;

Consistent with Resolved 5 of the Remand Order, Water Board staff has modified the following language to require methylmercury monitoring through industrial wastewater NPDES permits and those of petroleum refineries.

- Monitor levels of methylmercury in discharges;
- Prepare an annual report that documents mercury loads from each facility, mercury and methylmercury effluent concentrations, and ongoing source control activities, including mercury loads avoided through control actions.

To further ensure implementation of effective programs to control mercury sources and loading, we have changed the conditions under which an industrial wastewater discharger will be required to submit an explanatory report regarding exceedance of trigger concentrations or mass allocation. The Mercury TMDL Amendment stated that a discharger would be required to submit a report if it exceeded both the individual mercury load allocation *and* an effluent mercury trigger concentration. The revised language calls for the submittal of a report if either the load allocation or trigger concentration is exceeded. Additionally, changes identical to those made in the municipal wastewater section were also made in the section of the proposed Basin Plan

amendment describing the trigger program for industrial wastewater dischargers (see Figures 3-1 and 3-2 above). These changes state: the averaging period of the mass trigger; the obligation to implement a corrective action plan; the time frame of report submittal; the additional report requirements; and the Water Board's intent concerning enforcement.

7. Revised Implementation Plan for Sediment Dredging and Disposal

Consistent with Resolved 6 of the Remand Order, Water Board staff has added language to this provision in the implementation plan section for Sediment Dredging and Disposal. The Long-Term Management Strategy (LTMS) is documented in the *Management Plan 2001* (USACE et al., 2001). The additional language is as follows:

> All in-Bay disposal of dredged material shall comply with the Dredging and Disposal of Dredged Sediment program described in Chapter 4 and the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region.

8. Revised Risk Management Provision

The Water Board has responded to Resolved 10 of the Remand Order by adding the following bullet item to the list of risk management activities:

- Investigate ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay caught fish, such as subsistence fishers and their families.

9. Revised Adaptive Implementation Language

The following focusing question for adaptive management reviews has been added to the adaptive implementation section of the Mercury TMDL Amendment.

5. Do prey fish monitoring data confirm that TMDL load allocations are adequate to attain the wildlife target?

6. Are mercury mine and Bay margin contaminated site cleanups proceeding as expected? Are any additional actions needed to protect water quality?

This first additional question is necessary because the wildlife target is now stated as a mercury concentration in prey fish. Prey fish mercury concentration data are not currently available, although efforts are underway to collect such data. At this time it is not possible to verify that the reductions needed from current prey fish tissue concentrations are achievable with the load reductions called for by the TMDL. Monitoring efforts now being undertaken through the RMP will help make such a determination possible during the first review of the mercury TMDL.

Consistent with Remand Order Findings 7f and Resolved 7, this second additional question is necessary to ensure that legacy mercury sources are identified, inventoried, prioritized and remediated. Regarding mines, we note that the TMDL implementation plan for Mercury Mines adopted in 2004, states that, "(f)or those mines that are not currently meeting the conditions set forth in the Mines Program, responsible parties shall attain compliance within five years of the effective date of the San Francisco Bay mercury TMDL implementation plan."

The following passage has been added to the Adaptive Implementation section of the Mercury TMDL Amendment:

> Achievement of the wasteload allocations for municipal wastewater dischargers is required within 20 years, and interim allocations within 10 years. The interim allocations are expected to be attained though aggressive pollution prevention and other cost-effective mercury reduction methods. The final wasteload allocations are expected to be attained through wastewater treatment system improvements and/or implementation of a pollutant offset program. Approximately 10 years after the effective date of the TMDL or any time thereafter, the Water Board will consider modifying the schedule for achievement of the wasteload allocations or revisions to wasteload allocations if the State Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations.

This passage provides the rationale for the timetable upon which the Water Board expects municipal dischargers to achieve interim and final wasteload allocations. It also references the Water Board's expectation of the development of an offset program by the State Board.

It is reasonable to anticipate wastewater treatment system improvements within 20 years for reasons other than the mercury TMDL. For example, other foreseeable regulatory drivers stemming from stricter air quality regulations for mercury or water quality concerns about emerging contaminants may well result in reduced mercury loads from wastewater facilities. During the first 10 years of implementation, we will be able to determine whether additional control measures or systems improvements are needed to achieve the 20-year wasteload allocation targets. If they are needed, such improvements can be financed, designed, constructed and brought into operation during the second 10-year period following adoption of the TMDL. In order to accomplish substantial systems improvements, communities must engage in a lengthy process that includes securing funding for new facilities, engineering design, construction, and permitting. The Water Board asserts that the second 10-year period following adoption of the TMDL is an appropriate and reasonable time frame to initiate and complete this process.

Consistent with Resolved 9 of the Remand Order, regarding expectation of the development of an offset program by the State Board. Water Board staff has added language to the Adaptive Implementation section of the Mercury TMDL Amendment.

The additional language is as follows:

> The Water Board will also include in any new or modified NPDES permit a reopener to implement a pollutant offset program when it is established.

IV. Regulatory Analyses

This section includes the analyses required by law for the adoption of new water quality objectives and for the proposed revisions to the Mercury TMDL Amendment. Subsections below provide an overview of the Project's compliance with California Water Code requirements; peer review requirements of Health and Safety Code §57004; federal and state antidegradation policies; and with CEQA.

1. California Water Code §§ 13241 and 13242

With respect to the proposed fish tissue water quality objectives,[1] the Water Board is authorized to adopt water quality objectives under California Water Code §13241 which identifies six factors that must be addressed when evaluating a water quality objective. These factors are considered below:

a) Past, present and probable future beneficial uses of water
b) Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto
c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area
d) Economic considerations
e) The need for developing housing within the region
f) The need to develop and use recycled water

a) Past, Present and Probable Future Beneficial Uses

Beneficial uses of San Francisco Bay are ocean, commercial, and sport fishing, estuarine habitat, industrial service supply, marine habitat, fish migration, navigation, industrial process supply, preservation of rare and endangered species, water contact recreation, noncontact water recreation, shellfish harvesting, fish spawning, and wildlife habitat. Beneficial uses of sport fishing, preservation of rare and endangered species, and wildlife habitat, are considered impaired due to mercury. When the proposed mercury water quality objectives are attained, these beneficial uses will be restored and protected.

b) Environmental Characteristics of the Hydrographic Unit

The hydrographic unit is San Francisco Bay. San Francisco Bay includes the following water bodies, as shown in Figure 4-1:

- Sacramento/San Joaquin River Delta (within San Francisco Bay region)

[1] The proposed water quality objectives are needed because they reflect current scientific understanding of mercury toxicity and so provide better protection to humans and wildlife than the existing objective, which was based on outdated science from over two decades ago. The proposed new objectives are clear, consistent with, and do not duplicate other statutes and regulations. They are expressed as numbers and therefore easily understood by affected persons.

- Suisun Bay
- Carquinez Strait
- San Pablo Bay
- Richardson Bay
- Central San Francisco Bay
- Lower San Francisco Bay
- South San Francisco Bay (including the Lower South Bay)

San Francisco Bay is a natural embayment in the Central Coast of California. With an average depth of six meters, the bay is broad, shallow, and turbid, which makes sediment an important factor in the fate and transport of pollutants. The movement of sediment within the bay is driven by daily tides, the spring-neap tide cycle, and seasonally variable wind patterns. About 150 years ago, during the California Gold Rush, hydraulic mining and dredging substantially altered the floor of the bay and mercury concentrations in Bay sediment. While still rebounding from those historic changes, the Bay is now affected by a growing metropolitan population of about 6.5 million people (USCB 2001).
The Bay is divided into two major hydrographic units, which are connected by the Central Bay to the Pacific Ocean. The northern reach is relatively well flushed because more than half of California's freshwater flows into the bay through the Sacramento and San Joaquin Rivers. In contrast, the southern reach receives more limited flushing from local watersheds.

c) Water Quality Conditions That Could Reasonably Be Achieved Through Coordinated Control of All Factors Affecting Water Quality

The proposed water quality objectives reflect the desired water quality conditions in San Francisco Bay such that beneficial uses will not be adversely affected by mercury. Factors that affect mercury water quality in San Francisco Bay include discharge of mercury from the Central Valley via the Sacramento and San Joaquin Rivers: the Guadalupe River; urban stormwater runoff; non-urban stormwater runoff; direct atmospheric deposition; municipal and industrial wastewater; contaminated sites at the Bay margin; sediment dredging and disposal in San Francisco Bay; and erosion of San Francisco Bay sediments. Other key factors are methylmercury discharge and production and its fate and transport within San Francisco Bay. All of these factors are recognized in the revised Mercury TMDL Amendment, which by design provides a program of coordinated control of these factors, via its TMDL, allocations and implementation plan. Compliance will result in attainment of the proposed water quality objectives.

d) Economic Considerations

The proposed fish tissue water quality objectives will be implemented through the Mercury TMDL as proposed to be revised. Therefore, the economics for the proposed water quality objectives can be considered by taking into account 1) the cost of compliance with the Mercury TMDL, which was analyzed in the Staff Report for the Mercury TMDL Amendment adopted by the Water Board in September 2004 and is

excerpted below, and 2) the costs associated with the additional requirements of the proposed Mercury TMDL revisions.

The 2004 Staff Report for the Mercury TMDL Amendment states as follows regarding economic costs:

> The economic costs of implementing the proposed Basin Plan Amendment are considered below. The discussion is organized by mercury source and monitoring and other data collection activities. All costs discussed below are only rough estimates. Expected costs are difficult to estimate because, although the proposed Basin Plan Amendment explains how the TMDL will be implemented, it does not prescribe the exact actions the parties responsible for implementing the TMDL must take to meet the allocations. A menu of options exists from which entities can choose. In many instances, selecting the most appropriate action will require obtaining information that is currently unavailable. Therefore, this economic analysis is primarily qualitative. The word "substantial" is used to refer to major economic burdens (e.g., on the order of $1 million or more). Quantitative information is included where available.
>
> *Bed Erosion*. Because bed erosion is a natural process due to uncontrollable factors, the Basin Plan Amendment does not prescribe any implementation actions to reduce the bed erosion mercury load. Therefore, there are no economic costs associated with reducing this load.
>
> *Central Valley Watershed*. To achieve the Central Valley watershed's proposed load allocation, the proposed Basin Plan Amendment relies primarily on mercury TMDL projects being completed for mercury in Central Valley impaired water bodies. The costs of preparing and implementing these TMDLs will likely be substantial. For example, the Central Valley watershed contains a number of waterbodies affected by mining, and remediating them could be costly. In addition, the costs of controlling urban storm water runoff in the Central Valley could be similar to those for the Bay Area (see below) because the populations and urbanization of the two regions are similar (USCB 2001). As shown in Table 9.2, the Central Valley Regional Water Quality Control Board has estimated unit costs for a number of mercury reduction options (USGS 2003c). The Central Valley Regional Water Quality Control Board has not yet estimated how many units of each type of activity will be needed.
>
> The Clean Water Act requires that the Central Valley TMDLs be completed whether or not the proposed Basin Plan Amendment for mercury in San Francisco Bay is approved. Therefore, the substantial costs associated with preparing and implementing the Central Valley TMDLs will occur with or without this proposed Basin Plan Amendment.

FIGURE 4-1: Map of San Francisco Bay Estuary

Eight unique segments of San Francisco Bay appear on the 303(d) list of impaired water bodies: Sacramento/San Joaquin River Delta, Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central San Francisco Bay, Lower San Francisco Bay, and South San Francisco Bay. Three additional mercury-impaired water bodies exist within these segments: Castro Cove, Oakland Inner Harbor, and San Leandro Bay.

Whether implementing the Central Valley TMDLs will cost more than they otherwise would because of the San Francisco Bay mercury TMDL is unknown. Economic considerations related to the Central Valley TMDLs will be evaluated when those TMDLs are proposed for adoption.

Urban Storm Water Runoff. The specific means by which urban storm water runoff management agencies will achieve their proposed wasteload allocations are unknown. Representatives of the Santa Clara Valley Urban Runoff Pollution Prevention Program have estimated that mercury TMDL-related activities will cost Santa Clara County municipalities roughly $0.33 per capita to initiate and roughly $0.42 per capita per year for ongoing operations (EOA 2003b). The Bay Area population is about 6.5 million (USCB 2001). If the Santa Clara Valley costs are representative of the Bay Area as a whole, mercury TMDL-related costs could exceed $2 million to initiate programs and roughly $3 million per year for ongoing operations. These estimates do not include waste disposal costs (e.g., disposal of mercury-containing sediment or consumer wastes) or costs for environmental monitoring. In addition, these estimates do not account for the potentially greater relative costs of newer and smaller urban runoff management programs. According to Santa Clara Valley Urban Runoff Pollution Prevention Program staff, actual costs could be roughly 10 times higher (EOA 2003b).

The costs of existing urban storm water runoff management programs are substantial. Assuming that they cost up to $18 per household (LARWQCB 2003), and that there are about 2.5 million households in the Bay Area (ABAG 2003), the Bay Area currently spends roughly $45 million per year specifically to manage urban storm water runoff (not including related activities that would occur with or without urban runoff permits). Although the additional costs to urban stormwater management programs associated with the proposed Basin Plan Amendment are unknown, they would likely range from $5 million per year to $500 million per year (Looker & Johnson 2004c) . These costs would cover a range of pollutants, including mercury, and would offer stream protection and flood management benefits as well. In accordance with existing storm water permits, urban runoff management agencies have already begun to implement mercury reduction measures. Many TMDL implementation activities could be accommodated within existing budgets by reprioritizing some activities. The extent to which this is possible is unknown.

Guadalupe River Watershed (Mining Legacy). To achieve the Guadalupe River watershed's proposed load allocation, the Basin Plan Amendment relies primarily on the TMDL project currently underway for mercury in the Guadalupe River. The costs of preparing and implementing this TMDL will likely be substantial because significant reductions are

needed. However, the Clean Water Act requires that the Guadalupe River TMDL be completed whether or not the proposed Basin Plan Amendment for San Francisco Bay is approved. Therefore, the substantial costs associated with preparing and implementing the Guadalupe River TMDL will occur with or without the proposed San Francisco Bay Basin Plan Amendment. Whether the Guadalupe River TMDL will cost more than it otherwise would because of the San Francisco Bay TMDL is unknown. Economic considerations related to the Guadalupe River TMDL will be evaluated when that TMDL is proposed for adoption.

Atmospheric Deposition. The Basin Plan Amendment does not include any implementation actions to control atmospheric deposition. The Basin Plan Amendment calls for additional study, and if appropriate, specific actions could be considered. The costs of undertaking such studies are discussed below.

Non-Urban Storm Water Runoff. The Basin Plan Amendment does not include any implementation actions to address non-urban storm water runoff because this is a natural process and sediment mercury concentrations are already close to pre-mining conditions (SFBRWQCB 2003f). Therefore, there are no economic costs to address non-urban storm water runoff.

Wastewater. Wastewater facilities are already meeting their wasteload allocations; therefore, the cost of implementing the Basin Plan Amendment would essentially be limited to the costs of implementing new pollution prevention measures. Most wastewater facilities are already implementing mercury pollution prevention programs. The cost of implementing these and additional programs has been estimated to be greater than $8 million (LWA 2002); however, this estimate may be high considering similar estimates for urban storm water runoff programs (discussed above).

Sediment Dredging and Disposal. The Basin Plan Amendment assumes that the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS) will be implemented with or without the Basin Plan Amendment. The LTMS is expected to result in substantial costs as less dredged material is disposed of in the bay and more is disposed of in the ocean or at upland sites. These costs, however, would not result from any requirements contained in this proposed Basin Plan Amendment.

Mercury Mines. The Basin Plan's mines program will be implemented with or without this proposed Basin Plan Amendment. There are no new economic costs to address mercury mines.

Bay Margin Contaminated Sites. The Basin Plan's toxic site cleanup program will be implemented with or without this proposed Basin Plan Amendment. There are no economic costs to address bay margin contaminated sites.

Wetlands. Opportunities may exist to minimize mercury methylation in wetlands. Additional study is necessary before the most effective options can be determined. The costs of undertaking pilot studies could be substantial.

Risk Management. The Basin Plan Amendment calls for enhancing risk management efforts to minimize human exposure to mercury from San Francisco Bay fish. These efforts could be coordinated with the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, and other entities. Assuming that this coordination could require as much as 0.2 person-years each year, the cost could be roughly $20,000 per year. This investment in staff time could yield dividends by securing grant funds.

Adaptive Management. The Basin Plan Amendment calls for the Water Board to refine and reconsider the mercury TMDL about every five years. Adaptively managing the TMDL in this way will require Water Board staff time, monitoring, and scientific studies. The Basin Plan Amendment calls for a number of studies to help refine the TMDL through adaptive management. The costs of the studies will depend, in part, on available resources and the results of the initial studies. The 2004-2005 Clean Estuary Partnership budget contains over $170,000 specifically for mercury-related studies (AMS 2003). The Basin Plan Amendment calls for continued monitoring through the Regional Monitoring Program for Trace Substances (RMP). The 2003 RMP budget is about $3.4 million, with $1.7 million allotted for status and trends monitoring and $0.5 million allotted for pilot and special studies (SFBRWQCB 2003i). The RMP already measures mercury in sediment and fish tissue; therefore, the additional monitoring costs associated with implementing the Basin Plan Amendment would be minimal. Pilot projects and special studies could probably be accommodated within the existing budget. The U.S. Fish and Wildlife Service already measures mercury in bird eggs; therefore, the additional costs of implementing the proposed Basin Plan Amendment would be minimal.

The costs associated with the requirements of the proposed revisions to the Mercury TMDL Amendment are costs associated with the more stringent wasteload allocations for municipal wastewater and additional implementation actions such as requiring municipal and industrial wastewater treatment facilities to develop and implement programs to reduce mercury-related risks to humans and wildlife and to conduct methyl mercury monitoring. The corrected wasteload allocations for industry do not implicate any new

requirements because the allocations still represent an estimate of current loading, rather than reductions, and facilities will be able to maintain current loading using methods already in place. Thus, no additional expenditures would result.

With respect to wastewater's allocation, the TMDL revisions propose a final allocation of 11 kg, as opposed to 17 kg which was adopted by the Water Board in the 2004 TMDL. As set forth the in the 2004 Mercury TMDL Amendment Staff Report, efforts necessary to comply with the 17 kg allocation were projected to be limited to implementing additional pollution prevention measures, and that the cost of implementing these and additional programs had been generously estimated to be greater than $8 million (citing LWA 2002). On top of these efforts, compliance with the proposed revised 11 kg allocation is expected through a combination of aggressive pollution prevention and other mercury reduction methods, water re-use, pollutant trading, offsets, and/or system improvements and upgrades. The costs of compliance are difficult to estimate with any certainty because it is unknown exactly how the wastewater community will choose from its menu of options. It is likely that the wastewater community will seek and employ the most efficient and cost-effective strategies to comply with the more stringent wasteload allocations. Arguably the most expensive manner of compliance would be for all Bay Area municipal treatment facilities not already providing advanced treatment (filtration) to upgrade to that level of treatment; however, the municipal wastewater treatment plants without advanced treatment facilities have indicated through BACWA that "[i]t is not the expectation that the reductions from 14 kg/yr to 11 kg/yr of mercury would require the investment of tens of millions of dollars per year to build and operate advance wastewater treatment where it does not exists. Although the technology exists to reduce the effluent loading, the cost of such technologies is not at all reasonable. BACWA is committed to a periodic review of treatment technologies and enhancements to determine if new reasonable and feasible approaches to reducing the mercury in effluent are developed." In any case, The additional yearly cost associated with this upgrade (even though it is not a reasonably foreseeably method of compliance) has been estimated at approximately $80 million (LWA 2002). This scenario is more of a theoretic possibility and the cost is the upper bound on the cost of compliance with the load reductions for municipal wastewater discharges. Furthermore, the upgrades, if they were to occur, would likely be in response to other regulatory drivers, such as stricter air quality regulations for mercury or water quality concerns from emerging contaminants which may result in reduced mercury loads from wastewater facilities.

The costs associated with additional programs to reduce mercury-related risks to humans and wildlife are difficult to estimate because the TMDL does not specify the composition of the strategies to reduce such risks. However, there are already efforts underway to examine mercury and other chemicals in fish in the Bay-Delta watershed, increase public awareness of fish contamination issues, and monitor potential changes in mercury concentrations from marsh restoration projects in the Delta (SFEI 2006). The total cost for these Delta-related efforts is $4.5 million. If similar efforts are undertaken focusing on the Bay, this cost can provide a frame of reference for the total incurred expense.

The costs related to the additional monitoring requirements are not significant. Total mercury effluent monitoring was required for discharges to San Francisco Bay prior to the TMDL. The proposed revised TMDL requires that wastewater effluent discharges and urban storm water runoff be monitored for methylmercury. Methylmercury sample collection procedures and multi-step laboratory analysis make it a relatively labor-intensive and higher cost analytical parameter. Nonetheless, the relatively few and generally low frequency of methylmercury samples within the overall wastewater and urban storm water sampling programs means it is a fraction of the overall monitoring program cost. The projected cost is no more than $180,000 per year, assuming each of the monthly samples costs $200 (Hamilton 2006), and every NPDES permittee (storm water and wastewater) conducts monthly sampling.

The proposed water quality objectives and revisions to the TMDL have not changed the fish, bird egg, and sediment sampling programs greatly (if at all); therefore, the additional monitoring costs associated with the proposed water quality objectives and revisions to the TMDL would be minimal.

e) Need for Housing

Neither of the proposed water quality objectives would restrict the development of housing in the San Francisco Bay Area because they do not result in any economic costs related to housing development. The reduced wastewater wasteload allocations may result in economic costs due to wastewater treatment system improvements. Municipal wastewater treatment capacity is often designed to accommodate a large percentage of possible housing development in the collection area. Wastewater treatment system improvements may be necessary to accommodate housing development because the wasteload allocations are based on current performance, not plant design capacity. It is reasonable to assume that wastewater treatment system improvements will be undertaken over the next one to two decades for a range of reasons including replacing aging infrastructure, TMDLs for other pollutants, and other regulatory actions unrelated to the Clean Water Act. Historically, the state and federal governments have provided the majority of the funding for wastewater treatment system improvements, with contributions also made by landowners. It is unlikely that treatment system costs alone would restrict the development of more than a few housing units in the San Francisco Bay Area.

f) Need to Develop and Use Recycled Water

There are no present restrictions on recycling of water due to mercury. The intent of the proposed water quality objectives is to improve water quality and reduce mercury levels in San Francisco Bay. The proposed objectives, therefore, are consistent with the need to develop and use recycled water.

In addition to the requirements of California Water Code §13241, California Water Code §13242 requires a program for achieving water quality objectives, including but not limited to a description of the nature of actions necessary to achieve the objectives; recommendations for appropriate action by any entity, public or private; a time schedule for the actions to be taken; and a description of surveillance to be undertaken in order to determine compliance with the objectives.

The program of implementation to achieve the proposed water quality objectives for mercury in San Francisco Bay is the Mercury TMDL Amendment, as proposed to be revised. As revised, the proposed TMDL Implementation Plan still calls for a 50 percent reduction in sediment mercury concentrations. The Mercury TMDL Amendment assumes a one-to-one relationship between sediment mercury and fish tissue mercury: A 40 percent reduction in striped bass mercury concentrations is needed to meet the human health target of 0.2 ppm mercury in 60-cm striped bass muscle tissue, and a 25 percent reduction in prey fish mercury concentrations is needed to meet the wildlife target of 0.03 ppm in 3–5 cm fish. Attaining these targets, through implementation of the mercury TMDL, will attain both the human health and wildlife mercury water quality objectives. The one-hour average water column mercury objective is already attained.

The Mercury TMDL, as proposed to be revised, also spells out appropriate actions by public and private entities, a time schedule for actions to be taken and sets forth means to determine compliance with the proposed water quality objectives.

2. Peer Review and Sound Scientific Rationale

The revised Mercury TMDL Amendment will establish a new total maximum daily load and water quality objectives for mercury in San Francisco Bay. The basis of the regulatory portions of all TMDLs and water quality objectives are subject to the scientific peer review provisions of Health and Safety Code §57004. The "scientific portions" of the Mercury TMDL Amendment, proposed revisions to the Mercury TMDL Amendment, and proposed water quality objectives have already undergone the scientific peer review required by the Health and Safety Code. As a result, the Water Board has fulfilled Health and Safety Code §57004 requirements.

Certain water quality policies adopted pursuant to the Porter-Cologne Water Quality Control Act are subject to the peer review requirements of Health and Safety Code §57004. (Health & Saf. Code, §57004, subd. (a)(1)(B)) Historically, the State Water Resources Control Board (State Board), which must approve all revisions to water quality control plans, has construed §57004 to cover Basin Plan amendments. Health and Safety Code §57004 requires the scientific portion of Basin Plan amendments to undergo external scientific peer review before the Regional Board takes final action on the amendment. (*Id.*, §57004, subd. (d).)

The scientific portion of a rule consists of "foundations of a rule that are premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions establishing a regulatory level, standard, or other requirements for the protection of public health or the environment." (Health & Saf.Code, §57004, subd. (a)(2).) The California Environmental Protection Agency (Cal/EPA) has described this review as an objective, critical review of a draft Agency scientific work product. Taken together, it is clear that Health and Safety Code §57004 is designed to ensure that the scientific assumptions of a rule are tested by external peer review.

The scientific portions and basis of the revised Mercury TMDL Amendment and proposed water quality objectives for mercury in San Francisco Bay were peer-reviewed in connection with the Mercury TMDL Amendment, adopted by the Water Board in September 2004, and the Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch mercury TMDL, adopted by the Central Valley Regional Water Quality Control Board (Cooke et al. 2004). Proposed revisions to the Mercury TMDL Amendment include revised wastewater wasteload allocations, for which the scientific basis were peer reviewed in connection with the Mercury TMDL Amendment. The scientific basis of the proposed mercury water quality objectives and the revised TMDL wildlife numeric target were peer-reviewed in connection with the Mercury TMDL Amendment and/or the water quality objectives adopted concurrently with the Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch mercury TMDL. Further details are provided below.

Wastewater Wasteload Allocations

A peer review of the scientific basis of the wasteload allocations and implementation requirements of the September 2004 Mercury TMDL Amendment was conducted in accordance with the requirements of Health and Safety Code §57004. Proposed revisions to the TMDL include reduced wasteload allocations for wastewater discharges. The scientific basis for the revised allocations is the same as for those in the Mercury TMDL Amendment that were peer reviewed and subsequently adopted by the Water Board. The peer-reviewed documents included analysis of empirical data (wastewater discharge data), application of a one-box mass budget model of San Francisco Bay, and analysis of the linkage between sources and the numeric targets of the TMDL. The combined outcome of these analyses was a demonstration that allocations based on existing discharge levels could be justified as well as more conservative (lower) allocations. This renders the determination of the allocations to a policy not a scientific decision. The implementation requirements of the revised TMDL are essentially the same as those of the existing TMDL. Actions necessary to meet the lower wasteload allocations of the revised TMDL are the same as those already required by or considered in establishing the existing TMDL requirements.

Mercury Water Quality Objective to Protect Human Health

The proposed mercury water quality objective to protect human health (0.2 mg mercury per kg fish) was adopted in 2004 by the Water Board in the Mercury TMDL Amendment as a TMDL target. The scientific basis for the target was peer reviewed prior to adoption by the Water Board. The target is derived using the methodology recommended by USEPA, which was scientifically peer-reviewed as part of the development of USEPA's water quality criterion of 0.3 mg mercury per kg fish. As recommended by USEPA in the documentation for this criterion, San Francisco Bay specific fish consumption data are used in the derivation of the proposed mercury water quality objective.

Mercury Water Quality Objective to Protect Wildlife

The proposed wildlife water quality objective, 0.03 mg mercury per kg fish, applies to fish three to five centimeters in length. This value was adopted by the Water Board in 2004 in the Mercury TMDL Amendment as an alternative TMDL target for demonstrating protection of wildlife and was peer reviewed prior to adoption by the

Water Board. The Mercury TMDL Amendment specifies a numeric target of < 0.5 mg mercury per kg bird egg to protect the California Least Tern, the most sensitive wildlife species in the Bay. The Mercury TMDL Amendment also recognizes that "According to the US Fish & Wildlife Service (USFWS), the sensitive and endangered California least tern will be protected if the average mercury concentration in the fish it consumes does not exceed 0.03 mg per kg fish tissue (wet weight)." The Mercury TMDL Amendment also includes monitoring of prey fish mercury concentrations as an alternative method of demonstrating protection of wildlife (the purpose of the bird egg target).

The scientific basis for this water quality objective is an approach developed by the USFWS that was peer reviewed in connection with the Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch mercury TMDL. The USFWS approach considers mercury's capacity to bioaccumulate and biomagnify in the aquatic food chain, assumed that upper trophic level wildlife species (i.e. predatory birds and mammals) have the greatest inherent risk from exposure to mercury, and evaluated federal listed species, including the California least tern. USFWS reviewed the scientific literature to determine the body weight and consumption habits (dietary composition, food ingestion rates) of these species at greatest risk and calculated a safe mercury concentration as follows:

$$\text{Acceptable mercury level in fish tissue} = \frac{\text{Safe daily intake (reference dose) X Consumer's body weight}}{\text{Consumption rate}}$$

The proposed water quality objective, 0.03 mg mercury per kg fish consumed by wildlife, is based on the USFWS method. USFWS concludes that in San Francisco Bay California least tern consume fish (topsmelt, jacksmelt, and northern anchovy) less than 5 cm in length and a safe mercury level in their prey is 0.03 mg/kg (USFWS 2003).

3. Antidegradation

The numeric targets and proposed water quality objectives must be consistent with antidegradation policies. Title 40 of the Code of Federal Regulations (§131.12) contains the federal antidegradation policy. State Water Resources Control Board Resolution 68-16 contains California's antidegradation policy. These antidegradation policies are intended to protect beneficial uses and the water quality necessary to sustain them. When water quality is sufficient to sustain beneficial uses, it cannot be lowered unless doing so is consistent with the maximum benefit to the citizens of California. Even then, water quality must sustain existing beneficial uses.

The two proposed Basin Plan water quality objectives for mercury in fish tissue reflect current scientific understanding and are more stringent than the existing Basin Plan four-day average total mercury objective of 0.025 µg/l. The proposed fish tissue objectives address the current understanding of mercury bioaccumulation and include estimated "bioaccumulation factors" (BAFs) to describe mathematically how mercury is concentrated up the food chain from one trophic level to the next. The existing Basin Plan objective is based on science from over two decades ago, which used "bioconcentration factors" (BCFs) which described how mercury concentrated from water into an aquatic species, but did not describe the bioaccumulation across trophic

levels. This objective was also based on 1 ppm in fish tissue, and both the proposed objectives are more stringent (0.2 and 0.03 ppm).

The numeric TMDL targets are designed to attain the existing Basin Plan narrative water quality objective for bioaccumulation and the two proposed Basin Plan water quality objectives for mercury in fish tissue. (As noted in Attainment of Standards, above, the Basin Plan one-hour numeric objective and CTR objective are not exceeded.) The two fish tissue targets are consistent with the two proposed Basin Plan objectives. Since mercury concentrations in biota already exceed conditions of the narrative bioaccumulation objective and two proposed objectives, meeting the numeric TMDL targets will attain water quality standards. Therefore, the proposed targets are consistent with the antidegradation policies and the protection of water quality and beneficial uses.

4. California Environmental Quality Act (CEQA)

CEQA requires agencies to review the potential for their actions to result in adverse environmental impacts. CEQA further requires agencies to adopt feasible measures to mitigate significant impacts. The water quality planning process is a certified regulatory program approved by the Secretary of Resources as functionally equivalent to and exempt from CEQA's requirements for preparation of an environmental impact report or negative declaration. As part of that regulatory program, the State Board's regulations at 23 Cal. Code of Regs. §3720 et seq. require any standard, rule, regulation or plan proposed for board approval to be accompanied by a completed Environmental Checklist and a written report containing (1) a brief description of the proposed activity; (2) reasonable alternatives to the proposed activity and (3) mitigation measures to minimize any significant environmental impacts of the proposed activity. Upon completion of the written report, the Water Board is required to provide a Notice of Filing of the report to the public.

This Staff Report is the written report required by the State Board's regulations. This subsection contains the CEQA analyses required for *both* the proposed water quality objectives and the proposed revisions to the Mercury TMDL.[2] Specifically, the Project analyzed herein and in the attached Environmental Checklist for potential environmental impacts is (for reader ease, the Project description is repeated here from part I. Introduction):

Project Description

The Project consists of the following changes to the Mercury TMDL Amendment:

1) Establish two numeric mercury water quality objectives for all segments of San Francisco Bay
    - To protect people who consume Bay fish (applies to larger fish consumed by humans): 0.2 mg mercury per kg fish tissue (average wet weight concentration,

[2] The environmental analyses for the Mercury TMDL Amendment were completed and adopted by the Water Board when it adopted the original amendment on September 15, 2004; however, since revisions are now proposed to that amendment, an environmental impact analyses associated with those revisions is necessary.

measured in edible portions (muscle tissue) of trophic level 3 and trophic level 4 fish)

- To protect aquatic organisms and wildlife (applies to small fish consumed by birds): 0.03 mg mercury per kg fish (average wet weight concentration measured in whole fish 3–5 cm in length)

2) Vacate (i.e. remove) the water column four-day average mercury water quality objective for San Francisco Bay
3) Clarify TMDL targets as follows, in line with objectives stated above:
   - "To protect sport fishing and human health, the average mercury concentration in 60-cm striped bass muscle tissue shall not exceed 0.2 mg mercury per kg fish tissue (wet weight)."
   - "To protect aquatic organisms and wildlife, the concentration of mercury shall not exceed 0.03 ppm, wet weight average, in whole fish 3–5 cm in length."
   - The bird-egg target is a monitoring target.
4) Revise wasteload allocations and the implementation plan for wastewater sources, including:
   - Clarify the pollution prevention requirements for municipal wastewater
   - Establish more stringent wasteload allocations for municipal wastewater dischargers, to be implemented via individual mass limits and aggregate mass limits and incorporating ten-year interim and twenty-year final implementation schedules
   - Correct the wasteload allocations for industrial wastewater
   - Impose more stringent application of compliance triggers for both industrial and municipal wastewater
   - Require municipal and industrial wastewater and urban stormwater to conduct methylmercury monitoring
5) Add a statement to the dredging section of the Mercury TMDL Amendment clarifying the Water Board's intent that all dredging activities in the Bay comply with the Long Term Management Strategy.
6) Expand risk management activities to include investigation of ways to address public health impacts of mercury on people and communities most likely to be affected by mercury in San Francisco Bay-Delta caught fish, such as subsistence fishers and their families

As explained in the Environmental Checklist, the proposed Project will not have any significant adverse environmental effects and no mitigation measures are proposed.

Despite the lack of significant adverse environmental effects, State Board's CEQA regulations require consideration of a reasonable range of feasible alternatives to the proposed activity. Under CEQA, the purpose of an alternatives analysis is to focus on alternatives to the project which are capable of avoiding or substantially lessening any significant effects of the project even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.

The Project objectives include:

1. Comply with the State Board remand so that the Mercury TMDL can be approved by State Board, Office of Administrative Law, and USEPA.
2. Replace the outdated 4-day marine mercury water quality objective with new objectives that protect human health and wildlife.
3. Commence implementation of the Mercury TMDL as soon as possible.
4. Implement the proposed water quality objectives in the most efficient manner, i.e., via Mercury TMDL implementation.

Alternatives

The alternatives to the project are: (1) take no action, (2) adopt the CTR mercury criterion as a water quality objective and target, (3) adopt USEPA methylmercury criterion as a water quality objective and target; or (4) adopt the proposed new water quality objectives with no revisions to the 2004 adopted TMDL.

Alternative 1: No Action

Under this alternative, the Water Board would not adopt the two proposed water quality objectives for mercury in fish tissue nor vacate the four-day average total mercury water column objective nor revise the Mercury TMDL. The no action alternative would be inconsistent with State Board Resolution No. 2005-0060 and the Mercury TMDL Amendment would likely not be approved by both the State Water Board and USEPA. This alternative would not meet the Project objectives and would not address San Francisco Bay's mercury impairment. Assuming no action were ever taken to address the Bay's mercury impairment, sediment mercury concentrations would likely decrease eventually due to existing processes, including foreseeable changes in the bed erosion mercury load. However, the bay-wide sediment mercury concentration would probably not reach levels consistent with applicable water quality objectives. As shown in Figure 7.2, the sediment mercury concentration would decline from about 0.44 ppm to about 0.22 ppm over a period of more than 200 years.

Under the no action alternative, USEPA may end up adopting a mercury TMDL on its own. The requirements of such a TMDL are unknown and therefore it would be speculative to analyze the environmental impacts of such a scenario. USEPA would likely rely, at least in part, on analyses completed to date; however, USEPA would be free to develop its own TMDL in any manner it deemed appropriate, within legal constraints. USEPA would identify targets and allocate mercury loads. USEPA would not impose an implementation plan directly. However, the Water Board would be expected to incorporate USEPA's TMDL and appropriate implementation actions into the Basin Plan through the continuing planning process.

Alternative 2: Adopt the CTR Mercury Criterion as an Objective and Target

Alternative 2 consists of:

- Adoption of the CTR criterion of 0.051 ug/l as a water quality objective and numeric target for mercury in San Francisco Bay
- Deletion of the existing Basin Plan Table 3-3's 4 day average water quality objective (0.025 ug/l) for mercury
- Adoption of the proposed revised Mercury TMDL Amendment

Under this alternative, the Water Board would not adopt the two proposed water quality objectives for mercury in fish tissue, but rather would adopt the CTR criterion, and would vacate the four-day average total mercury in water objective and revise the Mercury TMDL. The CTR criterion is not based on local consumption data, and therefore does not provide adequate protection of human health for consumption of fish from San Francisco Bay. The CTR criterion does not provide adequate protection of San Francisco Bay wildlife. This CTR criterion alternative would be inconsistent with State Board Resolution No. 2005-0060. Thus, taking the above into consideration, this alternative would not meet the project goals and would not address San Francisco Bay's mercury impairment and it is a less environmentally protective alternative than the proposed Project.

Alternative 3: Adopt USEPA Methylmercury Criterion as an Objective and Target

Alternative 3 consists of:

- Adoption of the USEPA methylmercury criterion of 0.3 mg mercury per kg fish as a water quality objective and numeric target for mercury in San Francisco Bay
- Deletion of the existing Basin Plan Table 3-3's 4 day average water quality objective (0.025 ug/l) for mercury
- Adoption of the revised Mercury TMDL Amendment

Under this alternative, the Water Board would not adopt the two proposed water quality objectives for mercury in fish tissue, but rather would adopt the USEPA methylmercury criterion, and would vacate the four-day average total mercury water column water quality objective and adopt the revised Mercury TMDL Amendment. The USEPA methylmercury criterion is not based on local consumption data, and as discussed above, does not provide adequate human health protection for consumption of fish from San Francisco Bay. The USFWS has concluded that the USEPA methylmercury criterion does not adequately protect at least one wildlife species in San Francisco Bay, the California least tern (USFWS 2003). This USEPA methylmercury criterion alternative would be inconsistent with State Board Resolution No. 2005-0060. This alternative would not meet the project goals and would not address San Francisco Bay's mercury impairment. It is less a less environmentally protective alternative than the proposed Project.

Alternative 4: New Water Quality Objectives and Previous TMDL

Alternative 4 consists of:

- Adoption of the two proposed water quality objectives for mercury in fish tissue as water quality objectives and numeric targets for mercury in San Francisco Bay
- Deletion of the existing Basin Plan Table 3-3's 4-day average water quality objective (0.025 ug/l) for mercury
- Not revising the September 2004 Mercury TMDL Amendment

Under this alternative, the Water Board would adopt the two proposed water quality objectives for mercury in fish tissue, vacate the four-day average total mercury in water objective and not revise the September 2004 Mercury TMDL Amendment. The TMDL would stand as the implementation plan for the new water quality objectives. Because this alternative would not address the concerns stated in State Board Resolution No. 2005-0060, the Mercury TMDL Amendment would likely not be approved by the State Water Board. This alternative would not meet the project goals and would not address San Francisco Bay's mercury impairment. It is also less environmentally protective than the proposed Project.

Reasonably Forseeable Methods of Compliance

CEQA additionally requires that whenever a Water Board adopts a rule that requires the installation of pollution control equipment or establishes a performance standard or treatment requirement, it must conduct an environmental analysis of reasonably foreseeable methods of compliance. This analysis must take into account a reasonable range of factors, including economics. The proposed project includes performance standards (i.e., water quality objectives and an additional wildlife target and more stringent waste load allocations for wastewater) and therefore requires an environmental analysis of the reasonably foreseeable methods of compliance with these standards, including economics.

Compliance with the proposed water quality objectives will occur through compliance with the Mercury TMDL. The environmental analyses presented in the Environmental Checklist and this Staff Report and the 2004 Mercury TMDL Amendment Staff Report and its companion Environmental Checklist account for potential environmental impacts associated with complying with the Mercury TMDL, as proposed to be revised. With respect to economics, the costs associated with complying with the proposed Project are evaluated above under the California Water Code §13241 Economic Considerations discussion.

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Appendix A to the Staff Report

PROPOSED BASIN PLAN AMENDMENT

Amendments to the following chapters of the San Francisco Bay Basin Water Quality Control Plan

Chapter 3 Water Quality Objectives

Chapter 4 Continuing Planning

Chapter 6 Surveillance and Monitoring

Chapter 7 Water Quality Attainment Strategies, Including Total Maximum Daily Loads

Changes proposed (from the September 2004 adopted Basin Plan amendment) in the April 21, 2006, *Proposed Basin Plan Amendment and Staff Report for Revised Total Maximum Daily Load (TMDL) and Proposed Mercury Water Quality Objectives, Draft for Public Review*, are indicated in single ~~strikeout~~ or underline.

Changes proposed in response to comments (on the April 21, 2006 *Draft for Public Review)* are indicated in double ~~strikeout~~ or underline.

Chapter 3. Water Quality Objectives

The following revisions indicated in underline/strikeout are proposed for Chapter 3, Water Quality Objectives.

OBJECTIVES FOR SPECIFIC CHEMICAL CONSTITUENTS

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Water quality objectives for selected toxic pollutants for surface waters are given in Tables 3-3, 3-3A, 3-3B, and 3-4.

The Water Board intends to work towards the derivation of site-specific objectives for the Bay-Delta estuarine system. Site-specific objectives to be considered by the Water Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Water Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation. Pending the adoption of site-specific objectives, the objectives in Tables 3-3 and 3-4 apply throughout the region except as otherwise indicated in the Tables or when site-specific objectives for the pollutant parameter have been adopted. Site-specific objectives for copper and nickel, adopted for South San Francisco Bay south of the Dumbarton Bridge, are listed in Table 3-3A. Objectives for mercury that apply to San Francisco Bay are listed in Table 3-3B.

South San Francisco Bay south of the Dumbarton Bridge is a unique, water-quality-limited, hydrodynamic and biological environment that merits continued special attention by the Water Board. Controlling urban and upland runoff sources is critical to the success of maintaining water quality in this portion of the Bay. Site-specific water quality objectives have been adopted for dissolved copper and nickel in this Bay segment. Site-specific objectives may be appropriate for other pollutants of concern, but this determination will be made on a case-by-case basis, and after it has been demonstrated that all other reasonable treatment, source control and pollution prevention measures have been exhausted. The Water Board will determine whether revised water quality objectives and/or effluent limitations are appropriate based on sound technical information and scientific studies, stakeholder input, and the need for flexibility to address priority problems in the watershed.

Table 3-3: Marine[a] Water Quality Objectives for Toxic Pollutants for Surface Waters (all values in ug/l)			
Compound	**4-day Average**	**1-hr Average**	**24-hr Average**
Arsenic[b, c, d]	36	69	
Cadmium[b, c, d]	9.3	42	
Chromium VI[b, c, d, e]	50	1100	
Copper[c, d, f]			
Cyanide[g]			
Lead[b, c, d]	8.1	210	
Mercury[h]	0.025	2.1	
Nickel[b, c, d]	8.2	74	
Selenium[i]			
Silver[b, c, d]		1.9	
Tributyltin[j]			
Zinc[b, c, d]	81	90	
PAHs[k]			15

Notes:

a. Marine waters are those in which the salinity is equal to or greater than 10 parts per thousand 95% of the time, as set forth in Chapter 4 of the Basin Plan. Unless a site-specific objective has been adopted, these objectives shall apply to all marine waters, except for the South Bay south of Dumbarton Bridge, (where the California Toxics Rule (CTR) applies) or as specified in Note h (below). For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater (Table 3-4) or marine objectives.

b. Source: 40 CFR Part 131.38 (California Toxics Rule or CTR), May 18, 2000.

c. These objectives for metals are expressed in terms of the dissolved fraction of the metal in the water column.

d. According to the CTR, these objectives are expressed as a function of the water-effect ratio (WER), which is a measure of the toxicity of a pollutant in site water divided by the same measure of the toxicity of the same pollutant in laboratory dilution water. The 1-hr. and 4-day objectives = table value X WER. The table values assume a WER equal to one.

e. This objective may be met as total chromium.

f. Water quality objectives for copper were promulgated by the CTR and may be updated by U.S. EPA without amending the Basin Plan. Note: at the time of writing, the values are 3.1 ug/l (4-day average)

and 4.8 ug/l (1-hr. average). The most recent version of the CTR should be consulted before applying these values.

g. Cyanide criteria were promulgated in the National Toxics Rule (NTR). The NTR criteria specifically apply to San Francisco Bay upstream to and including Suisun Bay and Sacramento-San Joaquin Delta. Note: at the time of writing, the values are 1.0 ug/l (4-day average) and 1.0 ug/l (1-hr. average).

h. Source: U.S. EPA Ambient Water Quality Criteria for Mercury (1984). The 4-day average value for mercury does not apply to San Francisco Bay; instead, the water quality objectives specified in Table 3-3B apply. The 1-hour average value continues to apply to San Francisco Bay.

i. Selenium criteria were promulgated for all San Francisco Bay/Delta waters in the National Toxics Rule (NTR). The NTR criteria specifically apply to San Francisco Bay upstream to and including Suisun Bay and Sacramento-San Joaquin Delta. Note: at the time of writing, the values are 5.0 ug/l (4-day average) and 20 ug/l (1-hr. average).

j. Tributyltin is a compound used as an antifouling ingredient in marine paints and toxic to aquatic life in low concentrations. U.S. EPA has published draft criteria for protection of aquatic life (Federal Register: December 27, 2002, Vol. 67, No. 249, Page 79090-79091). These criteria are cited for advisory purposes. The draft criteria may be revised.

k. The 24-hour average aquatic life protection objective for total PAHs is retained from the 1995 Basin Plan. Source: U.S. EPA 1980.

Table 3-3B: Marine[a] Water Quality Objectives for Mercury in San Francisco Bay[b]

Protection of Human Health	0.2 mg mercury per kg fish tissue	Average wet weight concentration measured in the edible portion of trophic level 3 and trophic level 4 fish[c]
Protection of Aquatic Organisms and Wildlife	0.03 mg mercury per kg fish	Average wet weight concentration measured in whole fish 3–5 cm in length

Notes:

a. Marine waters are those in which the salinity is equal to or greater than 10 parts per thousand 95% of the time, as set forth in Chapter 4 of the Basin Plan. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater or marine objectives.

b. Objectives apply to all segments of San Francisco Bay, including Sacramento/San Joaquin River Delta (within San Francisco Bay region), Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central San Francisco Bay, Lower San Francisco Bay, and South San Francisco Bay (including the Lower South Bay) ~~all marine and estuarine waters contiguous to San Francisco Bay~~.

c. Compliance shall be determined by analysis of fish tissue as described in Chapter 6, Surveillance and Monitoring.

Chapter 4. Continuing Planning

The following revisions indicated in underline/strikeout are proposed for the section at the end of Chapter 4, Continuing Planning.

WATER BOARD RESOURCE ALLOCATION

The items indicated below have been identified in this review as specific areas for which Water Board planning resources should be allocated. The items are divided into categories and each item is followed by an estimate of the frequency at which the item will be reviewed or the staff time and/or contract dollars needed to complete the item. Resolution of these items may result in future Basin Plan amendments.

TOTAL MAXIMUM DAILY LOAD	
Review the San Francisco Bay ~~M~~mercury TMDL and evaluate new and relevant information from monitoring, special studies, and scientific literature. Determine if modifications to the targets, allocations, or implementation plan are necessary.	Every 5 years

Chapter 6. Surveillance and Monitoring

The following insertion indicated in underline is proposed for Chapter 6, Surveillance and Monitoring, immediately after the "Compliance Monitoring" section, and before the "Complaint Investigation" section.

Compliance Monitoring – San Francisco Bay Mercury Human Health Objective

Compliance with the human health marine water quality objective for mercury in San Francisco Bay (Table 3-3B) will be evaluated in fish at the lengths shown below. The mercury concentration in the edible portion of these five species will be averaged and compared to the human health water quality objective.

Table 6-4. Five Most Commonly Consumed Bay Fish	
Species and Edible Portion	Evaluation Length (cm)
Striped bass, muscle without skin	60
California halibut, muscle without skin	75
Jacksmelt, muscle with skin and skeleton	25
White sturgeon, muscle without skin	135
White croaker, muscle with skin	25

Chapter 7. WATER QUALITY ATTAINMENT STRATEGIES, INCLUDING TOTAL MAXIMUM DAILY LOADS

The following text is proposed for insertion into Chapter 7, Water Quality Attainment Strategies, Including Total Maximum Daily Loads, immediately after the introduction of the section Toxic Pollutant Management in the Larger San Francisco Bay Estuary System. For clarity, revisions to text adopted by the Water Board in September 2004 are indicated below in underline/strikeout.

San Francisco Bay Mercury TMDL

The following sections establish the allowable annual mercury load (Total Maximum Daily Load [TMDL]) to San Francisco Bay, and actions and monitoring necessary to implement the TMDL. The numeric targets, allocations, and associated implementation plan will ensure that all San Francisco Bay segments attain applicable water quality standards, including the mercury water quality objectives set forth in Table 3-3B, established to protect and support beneficial uses.

The TMDL allocations and implementation plan focus on controlling the amount of mercury that reaches the Bay and identifying and implementing actions to minimize mercury bioavailability. The organic form of mercury (methylmercury) is toxic and bioavailable, but information on ways of controlling methylmercury production is limited. However, this is an area of active research and strategies for controlling this process are forthcoming. The effectiveness of implementation actions, monitoring to track progress toward targets, and the scientific understanding pertaining to mercury will be periodically reviewed and the TMDL may be adapted as warranted.

Problem Statement

San Francisco Bay is impaired because mercury contamination is adversely affecting existing beneficial uses, including sport fishing, preservation of rare and endangered species, and wildlife habitat. Mercury concentrations in San Francisco Bay fish are high enough to threaten the health of humans who consume them. In addition, mercury concentrations in some bird eggs harvested from the shores of San Francisco Bay are high enough to account for abnormally high rates of eggs failing to hatch.

In the context of this TMDL, "San Francisco Bay" refers to the following water bodies:

- Sacramento/San Joaquin River Delta (within San Francisco Bay region)
- Suisun Bay
- Carquinez Strait
- San Pablo Bay
- Richardson Bay
- Central San Francisco Bay
- Lower San Francisco Bay
- South San Francisco Bay (including the Lower South Bay)

This TMDL also addresses the following mercury-impaired water bodies that exist within the water bodies listed above:

- Castro Cove (part of San Pablo Bay)
- Oakland Inner Harbor (part of Central San Francisco Bay)
- San Leandro Bay (part of Central San Francisco Bay)

Numeric Targets

TMDL numeric targets interpret narrative and/or numeric water quality standards, including beneficial uses and water quality objectives. To protect ~~sport fishing and human health~~humans who consume Bay fish, the average fish tissue mercury concentration for a ~~typically~~ commonly consumed fish species ~~shall not exceed 0.2 mg mercury per kg fish tissue (wet weight)~~ is specified below as a human health target. To protect wildlife and rare and endangered species, the average fish tissue mercury concentration ~~of mercury~~ in fish consumed by piscivorous birds is specified below as a wildlife target.~~bird eggs shall be less than 0.05 mg mercury per kg wet weight.~~ The goal of this target is that controllable water quality factors not cause detrimental mercury concentrations in San Francisco Bay ~~bird eggs~~wildlife, which is consistent with the bioaccumulation objective in Chapter 3. To achieve the human health and wildlife ~~fish tissue and bird egg~~ targets and to attain water quality standards, the Baywide suspended sediment mercury concentration target is 0.2 mg mercury per kg dry sediment.

The Regional Monitoring Program (RMP) conducts monitoring relevant to evaluating progress toward meeting the sediment and human health and wildlife ~~fish tissue~~ targets~~, and the U.S. Fish and Wildlife Service collects information on bird egg mercury concentrations useful to evaluate progress toward meeting the bird egg target~~. The following passages describe acceptable approaches to evaluate progress toward meeting the targets. Other approaches can be considered during adaptive implementation reviews.

Suspended Sediment Target

The suspended sediment target (0.2 mg mercury per kg dry sediment) shall be compared to the annual median Bay suspended sediment mercury concentration found through RMP monitoring. The suspended sediment mercury concentration shall be computed as the difference between total and dissolved mercury concentration in a water sample (at each location) divided by the suspended sediment concentration for that same sample.

Human Health Target

The human health target is a fish tissue mercury concentration (0.2 mg mercury per kg fish tissue). This target applies to average wet weight fish tissue muscle concentrations in 60 cm long striped bass. The RMP conducts fish tissue sampling and analysis in San Francisco Bay every three years. Progress toward attainment of the human health target shall be evaluated by tracking mercury concentrations in striped bass, a ~~frequently~~ commonly consumed sport fish with relatively high mercury concentrations. Striped bass are routinely caught in three size ranges: 45-59 cm (small), 60-82 cm (medium), and larger than 82 cm (large). To provide sufficient data to evaluate the target, striped bass in the small and medium size ranges should be caught and analyzed. The best functional

relationship between mercury concentration and length shall be established for the fish caught, and the resulting equation of fit shall be evaluated at 60 cm to compute the mercury concentration to compare to the human health target. The RMP tracks mercury concentrations in other San Francisco Bay sportfish, such as halibut and jack-smelt. This information will be used to assess overall trends and human health risks.

Wildlife Target

The wildlife target is ~~expressed as~~ a ~~bird egg~~ fish tissue mercury concentration (~~less than 0.5~~ 0.03 mg mercury per kg fish). This target applies to average wet weight whole fish concentrations in 3–5 cm length fish. ~~The RMP is collaborating with the U.S. Fish and Wildlife Service on long-term monitoring and analysis of bird eggs. Eggs will be collected at several locations throughout San Francisco Bay. The wildlife target will be compared to the computed 99th percentile mercury concentration in eggs.~~

~~In addition to measuring mercury concentrations in bird eggs directly, it is also useful to measure the amount of mercury in bird prey. The Water Board will work with t~~The RMP ~~to~~ is developing a long term monitoring program to evaluate mercury concentrations in ~~prey~~ small fish typically consumed by birds, including by the California least tern. Progress toward attainment of the wildlife target will be evaluated by tracking mercury concentrations in 3–5 cm long Bay fish. The RMP is also collaborating with the U.S. Fish and Wildlife Service on long-term monitoring and analysis of bird egg mercury concentrations. ~~Prey species should include benthic invertebrates and small fish that are typically consumed by piscivorous birds. According to the U.S. Fish and Wildlife Service, the sensitive and endangered California least tern will be protected if the average mercury concentration in the fish it consumes does not exceed 0.03 mg per kg fish tissue (wet weight). Achieving this prey fish concentration is an alternative method of demonstrating attainment of the wildlife target.~~

Sources and Losses

During the California Gold Rush, cinnabar mines in the Central Coast Ranges produced the mercury used to extract gold from the Sierra Nevada foothills. Mercury was later mined and used to produce munitions, electronics, and health care and commercial products.

The year 2003 estimate of total mercury inputs to the San Francisco Bay is about 1220 kg/yr. The sources of mercury in San Francisco Bay include bed erosion (about 460 kg/yr), the Central Valley watershed (about 440 kg/yr), urban stormwater runoff (about 160 kg/yr), the Guadalupe River watershed (about 92 kg/yr), direct atmospheric deposition (about 27 kg/yr), non-urban stormwater runoff (about 25 kg/yr), and wastewater discharges (about ~~20~~18 kg/yr). There is a potential that mercury may enter the Bay from Bay margin contaminated sites and abandoned mercury mines outside the Guadalupe watershed. An evaluation of these potential sources is addressed below under Mercury TMDL Implementation.

Using box models for sediment and mercury inputs and outputs to and from San Francisco Bay, the 2003 estimate for San Francisco Bay mercury losses is approximately 1700 kg/yr. Mercury leaves the Bay by transport to the Pacific Ocean via the Golden Gate, the net result of dredging and disposal (in-Bay and upland), and other losses.

Allocations

Tables 4-v through 4-z present load and wasteload allocations for San Francisco Bay mercury sources. Table 4-v presents load and wasteload allocations by source category and the 2003 estimated annual loads. Tables 4-w through 4-z contain wasteload allocations for individual wastewater and urban stormwater discharges to San Francisco Bay. When summed, the individual allocations equal the category totals for urban stormwater and wastewater shown in Table 4-v.

TABLE 4-v: Mercury Load and Wasteload Allocations By Source Category

Source	2003 Mercury Load (kg/yr)	Allocation (kg/yr)
Bed Erosion[a]	460	220
Central Valley Watershed	440	330
Urban Stormwater Runoff	160	82
Guadalupe River Watershed (mining legacy)	92 [b]	2
Atmospheric Deposition	27	27
Non-Urban Stormwater Runoff	25	25
Wastewater (municipal and industrial)	~~20~~18	~~20~~12
Sediment Dredging and Disposal[c]	net loss	0 ≤ ambient concentration

Notes:

a. Bed erosion occurs as mercury buried in Bay sediment becomes available for biological uptake when overlying sediment erodes.

b. This load does not account for mercury captured in ongoing sediment removal programs conducted in the watershed.

c. Sediment dredging and disposal often moves mercury-containing sediment from one part of the Bay to another. The dredged sediment mercury concentration generally reflects ambient conditions in San Francisco Bay sediment. This allocation is both mass-based and concentration-based. The allocation will be implemented by confirming both that the combined effect of dredging and disposal continues to be a net loss and that the mercury concentration of dredged material disposed in the Bay must be at or below the Baywide ambient mercury concentration. This allocation ensures that this source category continues to represent a net loss of mercury.

TABLE 4-w: Individual Wasteload Allocations for Urban Stormwater Discharges			
Entity	**NPDES Permit**	**Allocation (kg/yr)[a]**	**Load Reduction (kg/yr)[b]**
Santa Clara Valley Urban Runoff Pollution Prevention Program	CAS029718	23	21
Alameda Countywide Clean Water Program	CAS029831	20	19
Contra Costa Clean Water Program	CAS029912	11	11
San Mateo County Stormwater Pollution Prevention Program	CAS029921	8.4	8.0
Vallejo Sanitation and Flood Control District	CAS612006	1.6	1.6
Fairfield-Suisun Urban Runoff Management Program	CAS612005	1.6	1.5
American Canyon	CAS612007	0.14	0.13
Sonoma County area [c]	CAS000004	1.6	1.5
Napa County area [c]	CAS000004	1.6	1.5
Marin County area [c]	CAS000004	3.3	3.2
Solano County area [c]	CAS000004	0.81	0.77
San Francisco County area [c,d]	CAS000004	8.8	8.4
Total		*82*[e]	*78*[e]

Notes:

[a] Allocations implicitly include all current and future permitted discharges within the geographic boundaries of municipalities and unincorporated areas including, but not limited to, California Department of Transportation (Caltrans) roadways and non-roadway facilities and rights-of-way, atmospheric deposition, public facilities, properties proximate to stream banks, industrial facilities, and construction sites.

[b] This column contains calculated load reductions relative to the estimated 2003 urban stormwater runoff annual load that are consistent with attaining the wasteload allocation. Demonstration of such load reductions is an alternative manner of showing compliance with the allocations.

[c] Includes unincorporated areas and all municipalities in the county that are in the Region and drain to the Bay. The statewide municipal stormwater general permit issued by the State Water Resources Control Board covers these municipalities.

[d] This urban stormwater runoff load estimate does not account for treatment provided by San Francisco's combined sewer system. The treatment provided by the Bayside facilities (NPDES permit CA0037664) will be credited toward meeting the allocation and load reduction.

[e] These totals differ slightly from the column sum due to rounding.

TABLE 4-x: Individual Wasteload Allocations for Municipal Wastewater Discharges

Permitted Entity	NPDES Permit	~~Allocation~~ 2000–2003 Load (kg/yr)	Interim Allocation (kg/yr)	Final Allocation (kg/yr)
American Canyon, City of	**CA0038768**	**0.12**	0.095	0.095
California Department of Parks and Recreation, Angel Island State Park	CA0037401	0.013	0.013	0.013
Benicia, City of	CA0038091	0.088	0.088	0.088
Burlingame, City of	CA0037788	0.089	0.089	0.089
Calistoga, City of	CA0037966	0.016	0.016	0.016
Central Contra Costa Sanitary District	CA0037648	2.23	1.8	1.3
Central Marin Sanitation Agency	CA0038628	0.18	0.15	0.11
Delta Diablo Sanitation District	CA0038547	0.31	0.25	0.19
East Bay Dischargers Authority Dublin-San Ramon Services District (CA0037613) Hayward Shoreline Marsh (CA0038636) Livermore, City of (CA0038008) Union Sanitary District, wet weather (CA0038733)	CA0037869	~~3.67~~3.6	2.9	2.2
East Bay Municipal Utilities District	CA0037702	2.~~57~~6[a]	2.1	1.5
East Brother Light Station	CA0038806	0.00001	0.000012	0.000012
Fairfield-Suisun Sewer District	**CA0038024**	**0.22**	**0.17**	**0.17**
Las Gallinas Valley Sanitary District	CA0037851	0.17	0.13	0.10
Marin County Sanitary District, Paradise Cove	CA0037427	0.~~001~~00055	0.00055	0.00055
Marin County Sanitary District, Tiburon	CA0037753	0.~~01~~0099	0.0099	0.0099
Millbrae, City of	CA0037532	0.052	0.052	0.052
Mountain View Sanitary District	**CA0037770**	**0.034**	**0.034**	**0.034**
Napa Sanitation District	CA0037575	0.28	0.23	0.17
Novato Sanitary District	CA0037958	0.079	0.079	0.079
Palo Alto, City of	**CA0037834**	**0.38**	**0.31**	**0.31**
Petaluma, City of	CA0037810	0.063	0.063	0.063
Pinole, City of	CA0037796	0.055	0.055	0.055
Contra Costa County, Port Costa Wastewater Treatment Plant	CA0037885	0.~~001~~00072	0.00072	0.00072
Rodeo Sanitary District	CA0037826	0.060	0.060	0.060
Saint Helena, City of	CA0038016	0.047	0.047	0.047
San Francisco, City and County of, San Francisco International Airport WQCP	CA0038318	0.032	0.032	0.032
San Francisco, City and County of, Southeast Plant	CA0037664	2.~~68~~7	2.1	1.6
San Jose/Santa Clara WPCP	**CA0037842**	**1.0**	**0.80**	**0.80**
San Mateo, City of	CA0037541	0.32	0.26	0.19
Sausalito-Marin City Sanitary District	CA0038067	0.078	0.078	0.078
Seafirth Estates	CA0038893	0.~~001~~00036	0.00036	0.00036

TABLE 4-x (continued): Individual Wasteload Allocations for Municipal Wastewater Discharges

Permitted Entity	NPDES Permit	~~Allocation~~ 2000–2003 Load (kg/yr)	Interim Allocation (kg/yr)	Final Allocation (kg/yr)
Sewerage Agency of Southern Marin	CA0037711	0.13	0.10	0.076
Sonoma Valley County Sanitary District	CA0037800	0.041	0.041	0.041
South Bayside System Authority	CA0038369	0.53	0.42	0.32
South San Francisco/San Bruno WQCP	CA0038130	0.29	0.24	0.18
Sunnyvale, City of	**CA0037621**	**0.15**	**0.12**	**0.12**
US Naval Support Activity, Treasure Island WWTP	CA0110116	0.026	0.026	0.026
Vallejo Sanitation & Flood Control District	CA0037699	0.57	0.46	0.34
West County Agency, Combined Outfall	CA0038539	0.38[c]	0.30	0.23
Yountville, Town of	CA0038121	0.040	0.040	0.04
Total		***17***[b]	***14***[b]	***11***[b]

Notes:

Bold text indicates advanced treatment

[a] This allocation includes wastewater treatment and all wet weather facilities.

[b] Total differs slightly from the column sum due to rounding.

[c] Mercury monitoring data quality concerns pertaining to this discharger will need to be addressed during the next review.

TABLE 4-y: Individual Wasteload Allocations for Petroleum Refinery Wastewater Discharges

Permitted Entity	NPDES Permit	Allocation (kg/yr)
Chevron Products Company	CA0005134	~~0.38~~0.34
ConocoPhillips	CA0005053	~~0.15~~0.13
Martinez Refining Co. (formerly Shell)	CA0005789	~~0.25~~0.22
Ultramar, Golden Eagle	CA0004961	~~0.13~~0.11
Valero Refining Company	CA0005550	~~0.09~~0.08
Total		***~~1.0~~0.9***

TABLE 4-z: Individual Wasteload Allocations for Industrial (Non-Petroleum Refinery) Wastewater Discharges[c]		
Permitted Entity	**NPDES Permit**	**Allocation (kg/yr)**
C&H Sugar Co.	CA0005240	~~1.56~~0.0013
Crockett Cogeneration	CA0029904	~~0.005~~0.0047
The Dow Chemical Company	CA0004910	~~0.044~~0.041
General Chemical	CA0004979	~~0.23~~0.21[a]
GWF Power Systems, Site I	CA0029106	~~0.002~~0.0016
GWF Power Systems, Site V	CA0029122	~~0.003~~0.0025
Hanson Aggregates, Amador Street	CA0030139	~~0.001~~0.000005
Hanson Aggregates, Olin Jones Dredge Spoils Disposal	CA0028321	~~0.001~~0.000005
Hanson Aggregates, Tidewater Ave. Oakland	CAA030147	~~0.001~~0.000005
Pacific Gas and Electric, East Shell Pond	CA0030082	~~0.001~~0.00063
Pacific Gas and Electric, Hunters Point Power Plant	CA0005649	~~0.022~~0.020
Rhodia, Inc.	CA0006165	~~0.012~~0.011
San Francisco, City and Co., SF International Airport Industrial WTP	CA0028070	~~0.055~~0.051
Southern Energy California, Pittsburg Power Plant	CA0004880	~~0.008~~0.0078
Southern Energy Delta LLC, Potrero Power Plant	CA0005657	0.0031
United States Navy, Point Molate	CA0030074	0.013
USS-Posco	CA0005002	~~0.047~~0.045
Total		***~~2.00~~.4***[b]

Notes:

[a] Data quality concerns pertaining to this discharger will need to be addressed during the next review.

[b] Total differs slightly from the column sum due to rounding.

[c] Wasteload allocations for industrial wastewater discharges do not include mass from once-through cooling water. The Water Board will apply intake credits to once-through cooling water as allowed by law.

Total Maximum Daily Load

The mercury TMDL for San Francisco Bay is the sum of the load and wasteload allocations, ~~706~~ 700 kg/yr. The Bay will attain applicable water quality standards for mercury when the overall mercury load is reduced to the TMDL and mercury methylation control measures are implemented.

A TMDL must include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality. This TMDL's targets and allocations rely on conservative assumptions, which thereby provide an implicit margin of safety. The adaptive approach to implementation provides an additional margin of safety.

There is no evidence that mercury contamination in San Francisco Bay is worse at any particular time of year. Therefore, the TMDL and allocation scheme do not have a seasonal component.

Mercury TMDL Implementation

The San Francisco Bay mercury TMDL implementation plan has four objectives: (1) reduce mercury loads to achieve load and wasteload allocations, (2) reduce methylmercury production and consequent risk to humans and wildlife exposed to methylmercury, (3) conduct monitoring and focused studies to track progress and improve the scientific understanding of the system, and (4) encourage actions that address multiple pollutants. The plan establishes requirements for dischargers to reduce or control mercury loads and identifies actions necessary to better understand and control methylmercury production. In addition, it addresses potential mercury sources and describes actions necessary to manage risks to Bay fish consumers. The adaptive implementation section describes the method and schedule for evaluating and adapting the TMDL and implementation plan as needed to assure water quality standards are attained.

Mercury Source Control Actions

This section, organized by mercury source categories, specifies actions required to achieve allocations and implement the TMDL.

Central Valley Watershed

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is developing mercury TMDLs for several mercury-impaired water bodies in its region that drain to San Francisco Bay. The Central Valley Water Board staff is currently developing a mercury TMDL for portions of the Delta within the Central Valley region designed to meet the Central Valley watershed's load allocation. This Delta mercury TMDL is scheduled for consideration as a Basin Plan Amendment by the Central Valley Water Board by December ~~2005~~2006.

Attainment of the load allocation shall be assessed as a five-year average annual mercury load by one of two methods. First, attainment may be demonstrated by documentation provided by the Central Valley Water Board that shows a net 110 kg/yr decrease in total mercury entering the Delta from within the Central Valley region. Alternatively, attainment of the load allocation may be demonstrated by multiplying the flow-weighted suspended sediment mercury concentration by the sediment load measured at the RMP Mallard Island monitoring station. If sediment load estimates are unavailable, the load shall be assumed to be 1,600 million kg of sediment per year. The mercury load fluxing past Mallard Island will be less than or equal to 330 kg/yr after attainment of the allocation.

The allocation for the Central Valley watershed should be achieved within 20 years after the Central Valley Water Board begins implementing its TMDL load reduction program. Studies need to be conducted to evaluate the time lag between the remediation of mercury sources and resulting load reductions from the Delta. An interim loading milestone of 385 kg/yr of mercury, halfway between the current load and the allocation, should be

attained ten years after implementation of the Central Valley Delta TMDL begins. This schedule will be reevaluated as the load reduction plans are implemented.

Urban Stormwater Runoff

The wasteload allocations shown in Table 4-w shall be implemented through the NPDES stormwater permits issued to urban runoff management agencies and the California Department of Transportation (Caltrans). The urban stormwater runoff allocations implicitly include all current and future permitted discharges, not otherwise addressed by another allocation, and unpermitted discharges within the geographic boundaries of urban runoff management agencies (collectively, "source category") including, but not limited to, Caltrans roadway and non-roadway facilities and rights-of-way, atmospheric deposition, public facilities, properties proximate to stream banks, industrial facilities, and construction sites.

The allocations for this source category should be achieved within 20 years, and, as a way to measure progress, an interim loading milestone of 120 kg/yr, halfway between the current load and the allocation, should be achieved within ten years. If the interim loading milestone is not achieved, NPDES-permitted entities shall demonstrate reasonable and measurable progress toward achieving the 10-year loading milestone.

The NPDES permits for urban runoff management agencies shall require the implementation of best management practices and control measures designed to achieve the allocations or accomplish the load reductions derived from the allocations. In addition to controlling mercury loads, best management practices or control measures shall include actions to reduce mercury-related risks to humans and wildlife. Requirements in each permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pollutants in stormwater runoff to the maximum extent practicable and remain consistent with the section of this chapter titled "Surface Water Protection and Management—Point Source Control—Stormwater Discharges". The following additional requirements are or shall be incorporated into NPDES permits issued or reissued by the Water Board for urban runoff management agencies.

i) Evaluate and report on the spatial extent, magnitude, and cause of contamination for locations where elevated mercury concentrations exist;

ii) Develop and implement a mercury source control program;

iii) Develop and implement a monitoring system to quantify either mercury loads or loads reduced through treatment, source control, and other management efforts;

iv) Monitor levels of methylmercury in discharges;

~~iv~~v) Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, and biological uptake in San Francisco Bay and tidal areas;

~~vv~~i) Develop an equitable allocation-sharing scheme in consultation with Caltrans (see below) to address Caltrans roadway and non-roadway facilities in the program area, and report the details to the Water Board;

vii) Prepare an annual report that documents compliance with the above requirements and documents either mercury loads discharged, or loads reduced through ongoing pollution prevention and control activities; and

viii) Demonstrate progress toward (a) the interim loading milestone, or (b) attainment of the allocations shown in Table 4-w, by using one of the following methods:

1) Quantify the annual average mercury load reduced by implementing (a) pollution prevention activities, and (b) source and treatment controls. The benefit of efforts to reduce mercury-related risk to wildlife and humans should also be quantified. The Water Board will recognize such efforts as progress toward achieving the interim milestone and the mercury-related water quality standards upon which the allocations and corresponding load reductions are based. Loads reduced as a result of actions implemented after 2001 (or earlier if actions taken are not reflected in the 2001 load estimate) may be used to estimate load reductions.

2) Quantify the mercury load as a rolling five-year annual average using data on flow and water column mercury concentrations.

3) Quantitatively demonstrate that the mercury concentration of suspended sediment that best represents sediment discharged with urban runoff is below the suspended sediment target.

~~An urban runoff management agency that complies with these permit requirements shall be deemed to be in compliance with receiving water limitations relative to mercury.~~ Once the Water Board accepts that a requirement has been completed by an urban runoff management agency, it need not be included in subsequent permits for that agency. These requirements apply to municipalities covered by the statewide municipal stormwater general permit (issued by the State Water Resources Control Board) five years after the effective date of th~~e~~is San Francisco Bay ~~M~~mercury TMDL.

Urban runoff management agencies have a responsibility to oversee various discharges within the agencies' geographic boundaries. However, if it is determined that a source is substantially contributing to mercury loads to the Bay or is outside the jurisdiction or authority of an agency the Water Board will consider a request from an urban runoff management agency which may include an allocation, load reduction, and/or other regulatory requirements for the source in question.

Within the jurisdiction of each urban runoff management agency, Caltrans is responsible for discharges associated with roadways and non-roadway facilities. Consequently, Caltrans shall be required to implement the following actions:

i) Develop and implement a system to quantify mercury loads or loads reduced through control actions;

ii) Prepare an annual report that documents mercury loads or loads reduced through control actions; and

iii) Develop an equitable allocation-sharing scheme that reflects Caltrans load reduction responsibility in consultation with the urban runoff management agencies, and report the details to the Water Board. Alternatively, Caltrans may choose to implement load

reduction actions on a watershed or regionwide basis in lieu of sharing a portion of an urban runoff management agency's allocation. In such a case, the Water Board will consider a separate allocation for Caltrans for which they may demonstrate progress toward attaining an allocation or load reduction in the same manner mentioned previously for municipal programs.

Guadalupe River Watershed (Mining Legacy)

In the near term, the effort underway to develop the Guadalupe River Watershed Mercury TMDL will be the mechanism used to implement and track progress toward achieving the load allocation. Ultimately, the Water Board expects the implementation plan for the Guadalupe River Watershed Mercury TMDL to integrate implementation efforts relative to that TMDL with those implementation efforts for the San Francisco Bay ~~M~~mercury TMDL.

The Guadalupe River Watershed Mercury TMDL will provide a watershed-wide mercury management strategy. Efforts are already underway in the watershed to take early actions to reduce mercury loads, and more are planned. A high priority for the watershed-based strategy is to control upper watershed sources associated with the mining legacy to avoid compromising actions taken in the lower watershed. The strategy will include measures that prevent mercury-laden sediment from reaching the Bay, either by removal or by preventing their transport to the Bay. The strategy will also feature measures intended to reduce methylmercury production and risks to human health and wildlife. An essential component of the strategy will also involve testing and evaluation of new techniques and control measures, the benefits of that may apply throughout the Bay. As the mercury load, methylation, and reductions resulting from these efforts are quantified by the dischargers identified through the Guadalupe River Watershed Mercury TMDL process, the Water Board will consider how the reductions achieved will be counted toward fulfillment of the load reductions required to meet the Guadalupe River watershed load allocation.

The Guadalupe River watershed mining legacy mercury load allocation is expected to be attained within 20 years after the Water Board begins implementing the Guadalupe River Watershed Mercury TMDL. As a way to measure progress, an interim-loading milestone of 47 kg/yr of mercury, halfway between the current load and the allocation, should be achieved within ten years. If the interim loading milestone is not achieved, dischargers shall make reasonable and measurable progress toward achieving the ten-year load reduction through implementation of the watershed-wide strategy.

Progress toward (a) the interim loading milestone, or (b) attainment of the allocation, shall be demonstrated by the dischargers identified through the Guadalupe River Watershed TMDL using one of the methods listed below:

1. Quantify the annual average mercury load reduced by implementing (a) pollution prevention activities, (b) source and treatment controls, and (c) if applicable, other efforts to reduce methylation or mercury-related risks to humans and wildlife consistent with the watershed-based strategy. The Water Board will recognize loads reduced resulting from activities implemented after 1996 (or earlier if actions taken are not reflected in the 2001 load estimate) to estimate load reductions.

2. Quantify the mercury load as a rolling five-year annual average using data on flow and water column mercury concentrations.
3. Quantitatively demonstrate that the mercury concentration of suspended sediment that best represents sediment discharged from the watershed to San Francisco Bay is below the suspended sediment target.

Municipal Wastewater

The individual municipal wastewater wasteload allocations shown in Table 4-x shall be implemented via individual mass limits and an aggregate mass limit that is the sum of the individual allocations, 11 kg/yr. ~~as a group mass limit.~~ The Water Board will issue a San Francisco Bay watershed mercury NPDES permit to all dischargers listed in Table 4-x to implement the individual and aggregate mass limits. ~~. The group mass limit is the sum of the individual allocations for these facilities, 17 kg/yr. If the group mass limit is exceeded, the Water Board will pursue enforcement actions against those individual dischargers whose mass emissions exceed their individual wasteload allocations.~~

The wasteload allocations for this source category shall be achieved within 20 years, and, as a way to measure progress, interim individual allocations equal to a 20 percent reduction from 2000-2003 annual mass discharge levels shall be achieved within 10 years. These interim allocations, shown in Table 4-x, shall be implemented via individual mass limits and an aggregate mass limit that is the sum of the individual interim allocations, 14 kg/yr. During the initial ten years, individual mass limits shall be the 2000-2003 annual mass discharge levels shown in Table 4-x, and the aggregate mass limit is the sum of these individual mass discharge levels.

If ~~the group mass limit is~~ any aggregate mass limit is exceeded, the Water Board will pursue enforcement actions against those individual dischargers whose mass ~~emissions~~ discharges exceed their individual ~~wasteload allocations~~ mass limits.

The ~~group~~ mass limits and the following requirements shall be incorporated into the watershed NPDES permit for municipal wastewater dischargers:

- Develop and implement effective programs that include but are not limited to pollution prevention to control mercury sources and loading, a plan and schedule of actions and effectiveness measures ~~and reduce mercury-related risks to humans and wildlife~~ applicable for the term of the permit, based on identification of the largest and most controllable sources and an updated assessment of source control measures and wastewater treatment technologies (the level of effort shall be commensurate with the mercury load and performance of the facility) and quantify the mercury load avoided or reduced ~~and risk reductions resulting from these activities~~;
- Develop and implement effective programs to reduce mercury-related risks to humans and wildlife and quantify risk reductions resulting from these activities;

- Comply with water quality-based effluent limitations, to be elaborated through the permit, that are consistent with the assumptions and requirements of the mercury wasteload allocation;
- Track individual facility and aggregate wastewater loads and the status of source control and pollution prevention activities;
- Monitor levels of methylmercury in discharges;
- Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, the conditions under which mercury methylation occurs, and biological uptake in San Francisco Bay and tidal areas;
- Conduct or cause to be conducted studies to evaluate the presence or potential for local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges; and
- Prepare an annual report that documents mercury loads from each facility, mercury and methylmercury effluent concentrations, and ongoing source control activities, including mercury loads avoided through control actions.

The watershed NPDES permit shall also specify conditions that apply to each individual facility. These conditions are intended to minimize the potential for adverse effects in the immediate vicinity of discharges and to ensure that municipal wastewater facilities maintain proper operation, maintenance, and performance. If a facility exceeds its individual mercury load allocation as a 12-month rolling average ~~and~~ or an effluent mercury trigger concentration, it shall be required to report the exceedance in its individual Self-Monitoring Report, implement a corrective action plan, and ~~to~~ submit a report within 60 days that:

- Evaluates the cause of the trigger or mass exceedances;
- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances;
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance;~~.~~
- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Effluent mercury trigger concentrations for secondary treatment facilities are a daily maximum of 0.065 µg/l total mercury and monthly average of 0.041 µg/l total mercury. For advanced treatment facilities, effluent mercury trigger concentrations are a daily maximum of 0.021 µg/l total mercury and a monthly average of 0.011 µg/l total mercury.

The Water Board will pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances. Determination of reasonable actions will be based on an updated

assessment of source control measures and wastewater treatment technologies applicable for the term of each issued or reissued permit.

Industrial Wastewater

The individual wasteload allocations for the industrial wastewater discharges from the five Bay Area petroleum refineries (Chevron, ConocoPhillips, ~~Shell~~Martinez Refining Co., Ultramar Golden Eagle, and Valero) ~~are shown~~listed in Table 4-y, and the ~~.The~~ individual wasteload allocations for all other industrial wastewater facilities ~~are~~ listed in Table 4-z shall be implemented via individual mass limits and an aggregate mass limit that is the sum of the individual allocations, 1.3 kg/yr. ~~. The total group allocation for industrial and refinery wastewater facilities is 3 kg/yr and shall be implemented as a group mass limit.~~ If the ~~group~~ aggregate mass limit is exceeded, the Water Board will pursue enforcement actions against those individual dischargers whose mass ~~emissions~~ discharges exceed their individual mass limits~~wasteload allocations~~.

The ~~group~~ mass limits and the following requirements shall be incorporated into NPDES permits for all industrial wastewater dischargers:

- Develop and implement effective programs to control mercury sources and loading including demonstration that discharge levels represent good performance based on an updated assessment of source control measures and wastewater treatment technologies ~~and reduce mercury-related risks to humans and wildlife~~ (the level of effort will be commensurate with the mercury load and performance of the facility) and quantify the mercury load avoided or reduced ~~and risk reductions resulting from these activities~~;
- Develop and implement effective programs to reduce mercury-related risks to humans and wildlife and quantify the risk reductions resulting from these activities;
- Comply with water quality-based effluent limitations, to be elaborated through the permit, that are consistent with the assumptions and requirements of the mercury wasteload allocation;
- Monitor levels of methylmercury in discharges;
- Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, the conditions under which mercury methylation occurs, and biological uptake in San Francisco Bay and tidal areas;
- Conduct or cause to be conducted studies to evaluate the presence or potential for local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges; and
- Prepare an annual report that documents mercury loads from each facility, mercury and methylmercury effluent concentrations, and ongoing source control activities, including mercury loads avoided through control actions.

The NPDES permits for industrial facilities shall also specify conditions that apply to each individual facility. These conditions are intended to minimize the potential for adverse effects in the immediate vicinity of discharges and to ensure that industrial wastewater facilities maintain proper operation, maintenance, and performance. If a facility exceeds its individual mercury load allocation as a 12-month rolling average ~~and~~ or an effluent mercury trigger concentration, it shall be required to report the exceedance

in its individual Self-Monitoring Report, implement a corrective action plan, and ~~to~~ submit a report within 60 days that:

- Evaluates the cause of the trigger or mass exceedances;
- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances;
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance;~~.~~
- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Effluent mercury trigger concentrations are a daily maximum of 0.062 µg/l total mercury and monthly average of 0.037 µg/l total mercury.

The Water Board will pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances. Determination of reasonable actions will be based on an updated assessment of source control measures and wastewater treatment technologies applicable for the term of each issued or reissued permit.

Bay Area petroleum refineries shall be required to work collaboratively with the Water Board to investigate the environmental fate of mercury in crude oil and report findings to the Water Board within five years of the effective date of the~~is~~ San Francisco Bay ~~M~~mercury TMDL implementation plan. These requirements may be implemented via the Water Board's authority under Section 13267 of the California Water Code or petroleum refinery wastewater NPDES permits. The report shall address two key questions:

1. What are the potential pathways by which crude oil mercury could be discharged to the Bay from Bay Area petroleum refining facilities?
2. What are the annual mercury loads associated with these discharge pathways?

Sediment Dredging and Disposal

The allocation for sediment dredging and disposal is both mass-based and concentration-based. The mercury concentration in dredged material disposed of in the Bay shall not exceed the 99th percentile mercury concentration of the previous 10 years of Bay sediment samples collected through RMP (excluding stations outside the Bay like the Sacramento River, San Joaquin River, Guadalupe River and Standish Dam stations). Prior to disposal, the material shall be sampled and analyzed according to the procedures outlined in the 2001 U.S. Army Corps of Engineers document "Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region." All in-Bay disposal of dredged material shall comply with the Dredging and Disposal of Dredged Sediment program described in Chapter 4 and the Long-Term Management Strategy for the Placement~~Disposal~~ of Dredged Material in the San Francisco Bay Region.

The process of dredging and disposing of dredged material in the Bay may enhance biological uptake and methylmercury exposure. To address this concern, permitted dredging and disposal operations shall demonstrate that their activities are accomplished in a manner that does not increase bioavailability of mercury. As part of this demonstration, the Waste Discharge Requirements for such operations shall include requirements to conduct or cause to be conducted studies to better understand how their operations affect mercury fate, transport, and biological uptake.

Atmospheric Deposition

Mercury that deposits directly on the Bay surface and the surrounding watershed is attributed to both remote and local sources. The extent to which these sources can be controlled is unknown and the Water Board's authority to control such sources is limited. The load allocation does not allow an increase of current loads, and does not require a reduction from this source category at this time. Recent scientific studies suggest that mercury newly deposited from the atmosphere may be more available for biological uptake than mercury already present in an aquatic system. As such, the following implementation efforts need to be undertaken to evaluate the significance of atmospheric deposition and the feasibility of load reductions:

- The U.S. Environmental Protection Agency should investigate the significance of atmospheric deposition and actively pursue national and international efforts to reduce the amount of mercury released through combustion of fossil fuels; and
- The Bay Area Air Quality Management District should conduct a local mercury emissions inventory, investigate the significance of local mercury air emissions, evaluate the effectiveness of existing control measures and the feasibility of additional controls.

If local air sources are found to contribute substantially to atmospheric deposition loading to the Bay and its surrounding watershed, the Water Board will consider assigning allocations and load reductions to individual air sources and work with the Bay Area Air Quality Management District to ensure allocations are achieved.

New Mercury Sources

As the TMDL is implemented, new sources of mercury may emerge either as the result of a new facility applying for a discharge permit or as a result of a new source being discovered. The Water Board will consider establishing a load or wasteload allocation for a new mercury source under any of the following circumstances:

- The allocation from one or more existing sources of the same category (e.g., municipal wastewater) will be reduced by an amount equal to the new allocation; or
- The Water Board finds that the magnitude of the new allocation is negligible compared to load reductions from all sources that will have been realized prior to establishing the new allocation; or
- The allocation is for a previously unquantified discharge of mercury from a source category that does not already have an allocation.

This section specifies actions required for sources that are potentially either discharging mercury or enhancing methylmercury production in the Bay.

Mercury Mines

Local inactive mercury mines shall be addressed through continued implementation of the Mines and Mineral Producers Discharge Control Program (Mines Program) described ~~later~~ in ~~this c~~Chapter 4. The key regulatory component of this established program is that property owners of inactive and active mine sites that discharge stormwater contaminated by contact with any overburden, raw material, intermediate products, finished products, byproducts, or waste products are required to comply with NPDES industrial stormwater regulations. Under the Mines Program, the Water Board has the authority to issue individual industrial permits or allow the discharger to obtain coverage under the industrial stormwater general permit issued by the State Water Resources Control Board. For those mines that are not currently meeting the conditions set forth in the Mines Program, responsible parties shall attain compliance within five years of the effective date of the~~is~~ San Francisco Bay ~~M~~mercury TMDL implementation plan.

Bay Margin Contaminated Sites

A number of former industrial and military sites that contain mercury-enriched sediment surround the Bay. Available data are insufficient at this time to determine whether these sites may be discharging to the Bay. While the load these sites contribute to the Bay may be small relative to known sources, these sites may pose local threats. As such, cleanup of these sites is a Water Board priority and many cleanups are underway. The Water Board will require parties responsible for Bay margin contaminated sites to:

1. Quantify mercury mass on site such that the upper 95% confidence limit of the mean value is no more than 20% higher than the estimated mean;
2. Determine seasonal and spatial patterns of total mercury and methylmercury in sediments on site;
3. Estimate future mercury mass on site and patterns of contamination after planned remediation efforts are complete;
4. Determine seasonal patterns of total mercury and methylmercury in the water column at the site;
5. Collect prey items for local fish and birds and assess mercury concentrations; and
6. Quantify rate of sediment accretion or erosion at the site.

These requirements shall be incorporated into relevant site cleanup plans within five years of the effective date of the~~is~~ San Francisco Bay mercury TMDL, and the actions shall be fully implemented within ten years of the effective date of this TMDL.

Wetlands

Wetlands may contribute substantially to methylmercury production and biological exposure to mercury within the Bay. Plans for extensive wetland restoration in the San Francisco Bay region raise the concern that mercury methylation may increase, thereby increasing the amount of mercury entering the food web. Implementation tasks related to

wetlands focus on managing existing wetlands and ensuring that new constructed wetlands are designed to minimize methylmercury production and subsequent transfer to the food web.

The Water Board issues Waste Discharge Requirements and Clean Water Act Section 401 certifications that set forth conditions related to Bay filling and the construction and management of wetlands. To implement the San Francisco Bay mercury TMDL, the Waste Discharge Requirements and Section 401 certifications for wetland projects shall include provisions that the restored wetland region be designed and operated to minimize methylmercury production and biological uptake, and result in no net increase in mercury or methylmercury loads to the Bay. Additionally, projects must include pre- and post-restoration monitoring to demonstrate compliance. There is much active research on mercury cycling in wetlands. Information about how to manage wetlands to suppress or minimize mercury methylation will be adaptively incorporated into this implementation plan as it becomes available.

Risk Management

The mercury problem in San Francisco Bay may take decades to solve. However, there are activities that should be undertaken immediately to help manage the risk to consumers of mercury-contaminated fish. In this effort, the Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, and dischargers that pursue risk management as part of their mercury-related programs. The risk management activities will include the following:

- Providing multilingual fish-consumption advice to the public to help reduce methylmercury exposure through community outreach, broadcast and print media, and signs posted at popular fishing locations;
- Regularly informing the public about monitoring data and findings regarding hazards of eating mercury-contaminated fish; and
- Performing special studies needed to support health risk assessment and risk communication.
- Investigate ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay caught fish, such as subsistence fishers and their families.

Adaptive Implementation

The Water Board will adapt the TMDL to incorporate new and relevant scientific information such that effective and efficient actions can be taken to achieve TMDL goals. Approximately every five years, the Water Board will review the San Francisco Bay ~~M~~mercury TMDL and evaluate new and relevant information from monitoring, special studies, and scientific literature. The reviews will be coordinated through the Water

Board's continuing planning program and will provide opportunities for stakeholder participation. Any necessary modifications to the targets, allocations, or implementation plan will be incorporated into the Basin Plan. At a minimum, the following focusing questions will be used to conduct the reviews. Additional focusing questions will be developed in collaboration with stakeholders during each review.

1. Is the Bay progressing toward TMDL targets as expected? If it is unclear whether there is progress, how should monitoring efforts be modified to detect trends? If there has not been adequate progress, how might the implementation actions or allocations be modified?
2. What are the loads for the various source categories, how have these loads changed over time, and how might source control measures be modified to improve load reduction?
3. Is there new, reliable, and widely accepted scientific information that suggests modifications to targets, allocations, or implementation actions? In particular, is there new evidence regarding methylmercury that might justify a methylmercury TMDL or allocation, either in addition to or instead of the total mercury TMDL and allocations? If so, how should the TMDL be modified?
4. Are effective risk management activities in place to reduce human and wildlife exposure to methylmercury? If not, how should these activities be modified or enhanced?
5. Do prey fish monitoring data confirm that TMDL load allocations are adequate to attain the wildlife target?
6. Are mercury mine and Bay margin contaminated site cleanups proceeding as expected? Are any additional actions needed to protect water quality?

Using available data, the load and wasteload allocations were determined on the basis of their sufficiency to achieve water quality standards. As part of the adaptive implementation process, the Water Board will review the TMDL as a whole and determine whether new evidence suggests revisions of specific load and wasteload allocations that will result in more strategic, efficient, and cost effective achievement of water quality standards. For example, as reliable information becomes available regarding methylation control or the relative bioavailability of sources, the Water Board will consider adjusting allocations to implement the TMDL more effectively. The Water Board may also consider revising implementation requirements and/or resulting permit requirements if such changes are consistent with the assumptions and requirements of the allocations and the cumulative effect of such changes will ensure attainment of water quality standards.

Achievement of the allocations for three of the largest source categories (Central Valley Watershed, Urban Stormwater Runoff, Guadalupe River Watershed) is projected to take 20 years, with an interim 10-year milestone of fifty percent achievement. Approximately 10 years after the effective date of the TMDL or any time thereafter, the Water Board will consider modifying the schedule for achievement of the load allocations for a source category or individual discharger provided that they have complied with all applicable permit requirements and all of the following have been accomplished relative to that source category or discharger:

- A diligent effort has been made to quantify mercury loads and the sources of mercury and potential bioavailability of mercury in the discharge;
- Documentation has been prepared that demonstrates that all technically and economically feasible and cost effective control measures recognized by the Water Board as applicable for that source category or discharger have been fully implemented, and evaluates and quantifies the comprehensive water quality benefit of such measures;
- A demonstration has been made that achievement of the allocation will require more than the remaining 10 years originally envisioned; and
- A plan has been prepared that includes a schedule for evaluating the effectiveness and feasibility of additional control measures and implementing additional controls as appropriate.

Achievement of the wasteload allocations for municipal wastewater dischargers is required within 20 years, and interim allocations within 10 years. The interim allocations are expected to be attained though aggressive pollution prevention and other cost-effective mercury reduction methods. The final wasteload allocations are expected to be attained through wastewater treatment system improvements and/or implementation of a pollutant offset program. Approximately 10 years after the effective date of the TMDL or any time thereafter, the Water Board will consider modifying the schedule for achievement of the wasteload allocations or revisions to wasteload allocations if:

- ~~t~~The State Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations;.
- It can be demonstrated that all reasonable and feasible efforts have been taken to reduce mercury loads; and
- It can be demonstrated that no adverse local effects will result.

At approximately 20 years after the start of implementation and after taking the steps regarding schedule modification listed above, if a source category or individual discharger cannot demonstrate achievement of its allocation, despite implementation of all technically and economically feasible and cost effective control measures recognized by the Water Board as applicable for that source category or discharger, the Water Board will consider revising the allocation scheme provided that any resulting revisions ensure water quality standards are attained.

Load and wasteload allocations have been assigned to individual entities. However, assigning loads by watersheds could be a useful approach for managing pollutant loads, particularly if net environmental benefits can be realized. A watershed-based allocation program would only involve watersheds in the San Francisco Bay region that drain to the Bay. Such an approach could involve urban runoff management programs, wastewater facilities, and other dischargers in a watershed accepting joint responsibility for load reductions. An acceptable watershed allocation program may include incentives for agencies to implement load reduction activities and account for avoided mercury loads as well as incentives for strategic removal or sequestration of mercury already in the system. Credits could be used to offset annual loads and attain allocations for multiple sources.

In addition, the Water Board will encourage and consider a pilot mercury mass offset program if it is demonstrated that such a program is a more cost effective and efficient means of achieving water quality standards, and the relative potential for mercury from different sources to enter the food web and the potential for adverse local impacts have been evaluated. These programs should recognize and reward ongoing efforts that are above and beyond those required by this TMDL. Until such programs are established, the Water Board will consider mercury source control and risk reduction activities on a case-by-case basis to determine how they contribute toward achievement of TMDL goals. The Water Board will also include in any new or modified NPDES permit a reopener to implement a pollutant offset program when it is established.

Appendix B to the Staff Report

ENVIRONMENTAL CHECKLIST

APPENDIX B: Environmental Checklist

1. **Project Title:** Revisions to the San Francisco Bay Mercury Total Maximum Daily Load (TMDL) and proposed New Water Quality Objectives for Mercury.

2. **Lead Agency Name and Address:** California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

3. **Contact Person and Phone Number:** Dyan Whyte (510) 622-2441 Thomas Mumley (510) 622-2395

4. **Project Location:** San Francisco Bay and San Francisco Bay Region

5. **Project Sponsor's Name and Address:** California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

6. **General Plan Designation:** Not Applicable

7. **Zoning:** Not Applicable

8. **Description of Project:**

   The project consists of: 1) proposed revisions to the mercury TMDL Basin Plan Amendment, and 2) proposed water quality objectives for mercury in fish tissue to protect human health and wildlife. Additional details are provided in the explanation attached.

9. **Surrounding Land Uses and Setting:**

   The proposed water quality objectives and revisions to the Mercury TMDL Amendment would affect all segments of San Francisco Bay. Implementation would involve specific actions throughout the Bay Area.

10. **Other public agencies whose approval is required** (e.g., permits, financing approval, or participation agreement.)

    The California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency must approve the proposed project.

ENVIRONMENTAL IMPACTS:

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. AGRICULTURE RESOURCES -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
III. AIR QUALITY -- (cont.):				
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES -- (cont.):				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
VI. GEOLOGY AND SOILS -- (cont.):				
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
VII. HAZARDS AND HAZARDOUS MATERIALS -- (cont.):				
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
VIII. HYDROLOGY AND WATER QUALITY -- (cont.):				
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒
IX. LAND USE AND PLANNING -- Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
XI. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
XIII. PUBLIC SERVICES --				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XIV. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XV. TRANSPORTATION / TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
XV. TRANSPORTATION / TRAFFIC – (cont.):				
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒
XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Issues:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

EXPLANATION

Project Description

The proposed project (the Project) consists of the following changes to the Mercury TMDL Amendment (for reader ease, the Project description is repeated here from part I. Introduction):

1) Establish two numeric mercury water quality objectives for all segments of San Francisco Bay
   - To protect people who consume Bay fish (applies to larger fish consumed by humans): 0.2 mg mercury per kg fish tissue (average wet weight concentration, measured in edible portions (muscle tissue) of trophic level 3 and trophic level 4 fish)
   - To protect aquatic organisms and wildlife (applies to small fish consumed by birds): 0.03 mg mercury per kg fish (average wet weight concentration measured in whole fish 3–5 cm in length)
2) Vacate (i.e. remove) the water column four-day average mercury water quality objective for San Francisco Bay
3) Clarify TMDL targets as follows, in line with objectives stated above:
   - "To protect sport fishing and human health, the average mercury concentration in 60-cm striped bass muscle tissue shall not exceed 0.2 mg mercury per kg fish tissue (wet weight)."
   - "To protect aquatic organisms and wildlife, the concentration of mercury shall not exceed 0.03 ppm, wet weight average, in whole fish 3–5 cm in length."
   - The bird-egg target is a monitoring target.
4) Revise wasteload allocations and the implementation plan for wastewater sources, including:
   - Clarify the pollution prevention requirements for municipal wastewater
   - Establish more stringent wasteload allocations for municipal wastewater dischargers, to be implemented via individual mass limits and aggregate mass limits and incorporating ten-year interim and twenty-year final implementation schedules
   - Correct the wasteload allocations for industrial wastewater
   - Impose more stringent application of compliance triggers for both industrial and municipal wastewater
   - Require municipal and industrial wastewater and urban stormwater to conduct methylmercury monitoring
5) Add a statement to the dredging section of the Mercury TMDL Amendment clarifying the Water Board's intent that all dredging activities in the Bay comply with the Long Term Management Strategy.

6) Expand risk management activities to include investigation of ways to address public health impacts of mercury on people and communities most likely to be affected by mercury in San Francisco Bay-Delta caught fish, such as subsistence fishers and their families

In September 2004 the San Francisco Bay Regional Water Quality Control Board adopted a Basin Plan Amendment to incorporate a TMDL for mercury in the San Francisco Bay (Mercury TMDL Amendment). An Environmental Checklist was prepared for that project and published in April 2004, in compliance with CEQA and the Water Board guidelines of a certified CEQA program. Implementation of pollution reduction measures, public education, and water and sediment monitoring are described and analyzed in the Environmental Checklist for Mercury in San Francisco Bay Total maximum Daily Load and Basin Plan Amendment (Looker & Johnson 2004a).

In September 2005, the State Water Resources Control Board directed the Regional Board to consider revisions to the Basin Plan Amendment as specified in Resolution No. 2005-0060. This Environmental Checklist only evaluates potential environmental impacts of proposed revisions to the Mercury TMDL Amendment and the proposed new water quality objectives.

As mentioned above, the Project includes new proposed mercury water quality objectives to protect human health and wildlife and vacating the 4-day average marine water column water quality objective. Additions and deletion of water quality objectives and targets are presented in Table 1, below.

Table 1. Summary of Proposed Action as it Relates to Water Quality Objectives and TMDL Targets for Mercury in San Francisco Bay

Media	Limit	Proposed Action
Water	0.25 ug/l (4-day average for marine waters)	Vacate from Basin Plan as it applies to San Francisco Bay only
Fish tissue	0.03 mg mercury per kg fish (average wet weight concentration measured in whole fish 3–5 cm in length)	Add to Basin Plan as a new WQO and TMDL target
Fish tissue	0.2 mg mercury per kg fish tissue (average wet weight concentration measured in the edible portion of trophic level 3 and trophic level 4 fish)	Add to Basin Plan as a new WQO

Environmental Analysis

An environmental analysis of the Mercury TMDL was prepared and adopted by the Board in September 2004 on a programmatic Tier 1 level. The proposed Project consists of the above-referenced amendments to the 2004 Mercury TMDL and two new mercury water quality objectives. This environmental analysis only considers the environmental impacts of the proposed revisions and new water quality objectives. Like the 2004 Mercury TMDL, the Project does not define the specific actions local agencies must take to comply with requirements and the environmental analysis set forth herein is also on a

Tier 1 programmatic level. Project-specific environmental impacts will be evaluated as necessary when the projects are known.

The proposed Project will not have significant adverse impacts on the environment. Impacts of each of the above-referenced amendments and the new water quality objectives are discussed below and evaluated in the checklist.

New Water Quality Objectives

The proposed new water quality objectives are the same as the targets adopted or referred to in the Mercury TMDL Amendment adopted by the Water Board in 2004 and implementation of the new water quality objectives is to be achieved through implementation of the Mercury TMDL, as proposed to be revised through the Project. In other words, any physical environmental impacts associated with the proposed new water quality objectives stem from implementation of the Mercury TMDL, as revised. The new water quality objectives themselves are protective of human health, aquatic organisms and wildlife and are environmentally beneficial. With respect to impacts associated with implementation of these new objectives through the Mercury TMDL, the 2004 environmental analysis concluded there would be no significant environmental impacts. The current proposed revisions to the Mercury TMDL do not implicate new significant impacts, as set forth in more detail below.

Vacating the Existing 4-day Average Mercury Water Quality Objective

Vacating the existing 4-day average marine water quality objective for San Francisco Bay will not result in any significant impacts because the two new proposed water quality objectives for mercury in fish tissue are more stringent than the existing Basin Plan objective of 0.025 µg/l.

Clarifying the Mercury TMDL Targets

The human health target of 0.2 mg mercury per kg fish is not being revised; however, text is being added on the method to track progress toward attainment of the target using striped bass 60 cm long. The wildlife target is being re-expressed from a bird egg target (0.5 mg per kg wet weight) to the fish tissue target referenced in the 2004 Mercury TMDL (0.03 mg per kg fish tissue). These two targets reflect the same mercury concentration, with the differing numeric values attributable to how the same concentration of mercury manifests in fish tissue and bird eggs. These clarifications of the 2004 Mercury TMDL do not implicate any new impacts to the environment.

Revisions to Wasteload Allocations for Municipal Wastewater

The final total wasteload allocation for municipal wastewater is being revised from 17 kg/yr to 11 kg/yr—in effect, a 6 kg/yr total reduction to be achieved in 20 years (for context, Staff notes that the final TMDL for all sources is 700 kg/yr). This reduction entails the following reductions in individual wasteload allocations: (1) municipalities without advanced treatment: 40 percent reduction in the final wasteload allocation, with an interim reduction of 20 percent; (2) municipalities with advanced treatment: 20

percent interim and final reduction; (3) facilities whose allocation is 0.1 kg/yr or less or small municipal dischargers: no reduction. Interim reductions must be met in 10 years; final reductions must be met in 20 years.

The potential environmental impacts relate to the reasonably foreseeable methods of compliance with the reduced total wasteload allocation, although the required final reduction is only 6 kg/yr.

Municipalities will comply with the 20 percent reduction by intensifying their existing pollution prevention efforts. As set forth in the 2004 Mercury TMDL Environmental Checklist, physical environmental changes associated with these efforts relate to waste generation, handling and disposal. Pollution prevention activities would encourage proper disposal of mercury-containing wastes, which could slightly increase hazardous waste generation in the Bay Area. The 2004 Environmental Checklist concluded impacts of such slight increase would not be significant, and that to the extent such efforts divert mercury-containing wastes from inappropriate waste streams, it would be a benefit to the environment. The intensified pollution prevention efforts necessary to meet the 20 percent reduction would not significantly add to the generation of hazardous waste, either individually or cumulatively. Increased pollution prevention efforts such mercury amalgam collection from dental offices and mercury thermometer collection programs would add to the generation of mercury, but it would not be substantial and such mercury would be properly handled and disposed of instead of improperly ending up in sewers and non-hazardous waste landfills.

The 40 percent reduction is expected through a combination of aggressive pollution prevention and other mercury reduction methods, water re-use, pollutant trading, offsets and/or system improvements. The conceivable combinations municipalities could invoke to prevent 6 kg/yr of entering San Francisco Bay within the 20-year timeframe require speculation and cannot be evaluated at this point since the specific attributes of such projects and implementation actions are unknown. The Water Board is not dictating any particular method or combination of methods to comply with the 40 percent reduction. Rather, municipalities subject to the 40 percent reduction will be responsible for formulating their own project-specific strategies and they will undertake a Tier 2 project-specific environmental analysis to the extent required when the specific projects are proposed.

With respect to treatment plant upgrades as a method to comply with the 40 percent reduction, based on the public comments by municipal wastewater, treatment plant upgrades to advanced waste treatment/filtration, which has the potential for construction impacts, are not expected. Municipal wastewater sources have indicated through BACWA that upgrading to advanced waste treatment to comply with the 40 percent reduction is not reasonable, and is cost-prohibitive, and that they will investigate reasonable and feasible methods to comply. Their conclusion that upgrading is not reasonable appears to represent the rational calculus on the tens of millions of dollars it would take to chase a small amount of mercury. Thus, advanced waste treatment does not appear to be a reasonably foreseeable method of compliance with the 40 percent reduction requirement. In contrast, municipalities have expressed the need for the

mercury offset policy that State Water Board staff is tasked to develop under the Remand Resolution to comply with the final wasteload allocation. The environmental impacts of the yet-to-be-formulated offset policy is similarly difficult to forecast, much less analyze. When it is formulated, the State Water Board will undertake the appropriate CEQA review.

Revisions to Wasteload Allocation for Industrial Wastewater

The wasteload allocation for industrial wastewater is being revised to correct a calculation error. Specifically, the total load is being changed from 3 kg/yr to 1.3 kg/yr. The proposed load reflects current performance, and thus there is no change from the existing baseline condition, and thus no impacts.

Revisions to Implementation Plan

The Implementation Plan of the 2004 Mercury TMDL is proposed to be revised to 1) require methylmercury monitoring; 2) clarify requirements to better track the effectiveness of programs to control mercury sources and loadings; 3) require more risk management activities; 4) lower the bar for municipal and industrial wastewater to evaluate and correct exceedances of either the individual wasteload allocations or the mercury concentration triggers; and 5) include clarifying language that dredging comply with the existing Long Term Management Strategy. Revisions 2 and 5 do not involve physical changes to the environment. Methylmercury monitoring activities would not be continuous, occurring most frequently on a quarterly basis and would be conducted in an environmentally sensitive manner. The impacts, if any, would be less than significant. The specific increased risk management activities that will take place are unknown and therefore speculative to evaluate. Lowering the bar for municipalities and industrial wastewater to investigate and correct any exceedances would not have a significant adverse impact on the environment.

An explanation for each box checked on the environmental checklist is provided below:

I. Aesthetics

a-d) The new water quality objectives and revisions of the mercury TMDL would not substantially affect any scenic resource or vista, or degrade the existing visual character or quality of any site or its surroundings. It would not create any new source of light or glare.

II. Agriculture Resources

a-c) The Project would not involve the conversion of farmland to non-agricultural use. It would not affect agricultural zoning or any Williamson Act contract.

III. Air Quality

a) Because the Project would not cause any change in population or employment, it would not generate ongoing traffic-related emissions. It would also not involve the construction of any permanent emissions sources. For these reasons, no permanent

change in air emissions would occur, and the Basin Plan Amendment would not conflict with applicable air quality plans.

b) The Project objectives would not involve the construction of any permanent emissions sources or generate ongoing traffic-related emissions. The revised Basin Plan Amendment and new water quality objectives would not violate any air quality standard or contribute substantially to any air quality violation and no impacts would occur.

c) Because the Project would not generate ongoing traffic-related emissions or involve the construction of any permanent emissions sources, it would not contribute considerably to cumulative emissions.

d-e) Because the Project would not involve the construction of any permanent emissions sources, it would not expose sensitive receptors to ongoing pollutant emissions posing health risks or creating objectionable odors.

IV. Biological Resources

a-b) The Project is designed to benefit biological resources, including wildlife and rare and endangered species and would not substantially affect habitats, special-status species, or sensitive communities, and no adverse impacts would result.

c) The Project would require water and sediment sampling in wetlands to monitor methyl mercury production. Water quality monitoring would not be continuous (occurring most frequently on a quarterly basis) and would be conducted in an environmentally sensitive manner. Therefore, the project would and not result in significant adverse impacts to wetlands.

d-f) While no specific projects are required as part of the Project, any actions or specific projects would be developed in accordance with their local agency policies and ordinances, including any applicable habitat conservation plans, natural community conservation plans, or other plans intended to protect biological resources. Therefore, this Project would not conflict with local policies, ordinances, or adopted plans.

V. Cultural Resources

a-d) The Project would not include any substantial construction activities not previously considered in the Environment Checklist for the San Francisco Bay mercury TMDL and would not adversely affect any cultural resource, and no impacts would occur.

VI. Geology and Soils

a) The Project would not involve the construction of habitable structures; therefore, it would not involve any human safety risks related to fault rupture, seismic ground-shaking, ground failure, or landslides.

b) The Project itself would not involve any substantial construction beyond what was analyzed in the Environmental Checklist for the San Francisco Bay Mercury TMDL

(Looker & Johnson 2004a). Compliance with the more stringent wasteload allocations will likely be realized over time not through new treatment plant facilities, but through a combination of aggressive pollution prevention and other cost-effective mercury reduction methods, wastewater treatment system improvements, and the implementation of a State-developed program that establishes pollutant offsets and credits. Therefore, it would not result in substantial soil erosion and no impacts would occur.

c-d) The Project would not involve the construction of habitable structures. Therefore, the Basin Plan Amendment would not create safety or property risks due to unstable or expansive soil.

e) The Project would not require wastewater disposal systems; therefore, affected soils need not be capable of supporting the use of septic tanks or alternative wastewater disposal systems.

VII. Hazards and Hazardous Materials

a-f) Impacts related to mercury load reduction and remediation actions were evaluated in the Environmental Checklist for the San Francisco Bay Mercury TMDL (April 2004). No additional adverse impacts related to hazardous waste and the environment would result from the Project.

g) Hazardous waste management activities resulting from the Project would not interfere with any emergency response plans or emergency evacuation plans.

h) The Project would not affect the potential for wildland fires.

VIII. Hydrology and Water Quality

a) The Project would amend the Basin Plan, which articulates applicable water quality standards; therefore, it would not violate standards or waste discharge requirements.

b) The Project would not decrease groundwater supplies or interfere with groundwater recharge.

c-i) The Project would not include construction activities not previously considered in the Environment Checklist for the Mercury TMDL Amendment (Looker & Johnson 2004a) that would not result in substantial soil erosion, increase the rate or amount of runoff or result in flooding or increased flood hazards. Because the proposed Project is intended to reduce mercury-laden runoff, it would not be a source of new polluted runoff, or degrade water quality.

j) Any Project-related construction would not be subject to substantial risks due to inundation by seiche, tsunami, or mudflow.

IX. Land Use and Planning

a) The Project does not include planned construction that would divide any established community.

b-c) The Project would not conflict with any land use plan, policy, or regulation, and would not conflict with any habitat conservation plan or natural community conservation plan.

X. Mineral Resources

a-b) The Project would not result in the loss of availability of any known mineral resources.

XI. Noise

a-d) The Project does not include construction activities or other actions that would generate noise significant temporary or permanent noises sources beyond what was analyzed in the Environmental Checklist for the Mercury TMDL Amendment (Looker & Johnson 2004a). Sampling for methylmercury would occur at or near the ground or water surface and would not require drilling. No noise or vibration impacts would result from the Project and the Project would not result in violation of local agencies' noise standards.

e-f) The Project would not cause any permanent increase in ambient noise levels, including aircraft noise. Therefore, it would not expose people living within an area subject to an airport land use plan or in the vicinity of a private airstrip to excessive noise.

XII. Population and Housing

a-c) The Project would not affect the population of the Bay Area or California. It would not induce growth through such means as constructing new housing or businesses, or by extending roads or infrastructure. The Project would also not displace any existing housing or any people that would need replacement housing.

XIII. Public Services

a) The Project would not affect populations or involve construction of substantial new government facilities. The Project would not affect service ratios, response times, or other performance objectives for any public services, including fire protection, police protection, schools, or parks.

XIV. Recreation

a-b) Because the Project would not affect population levels, it would not affect the use of existing parks or recreational facilities. No recreational facilities would need to be constructed or expanded.

XV. Transportation / Traffic

a-b) Because the Project would not increase population or provide employment, it would not generate any ongoing motor vehicle trips. Therefore, the Project would not substantially increase traffic in relation to existing conditions. Levels of service would be unchanged.

c) The Project would not affect air traffic.

d) Because the Project would not affect any roads or the uses of any roads, it would not result in hazardous design features or incompatible uses.

e) Because the Project would not affect traffic or roadways, it would not restrict emergency access.

f) Because the Project would not increase population or provide employment, it would not affect parking demand or supply.

g) Because the Project would not generate ongoing motor vehicle trips, it would not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVI. Utilities and Service Systems

a) The Project would amend the Basin Plan, which is the basis for wastewater treatment requirements in the Bay Area; therefore, the Project would be consistent with such requirements.

b) The Project does not mandate the construction of new or expanded water or wastewater treatment facilities. Upgrading of existing wastewater treatment facilities to advanced treatment/filtration, which has the potential for air, construction and traffic impacts, is not a reasonably foreseeable method of compliance for the reasons given above. System improvements may occur to comply with the 40 percent reduction, which may involve minor construction activities. But it would be speculative to evaluate such changes without knowing the specifics of the improvements. If and when they are proposed, they would be evaluated in a project-specific Tier 2 environmental analysis.

c) Because the Project does not revise the stormwater wasteload allocations, the Project would not cause local agencies to construct some new or expanded urban storm water runoff management facilities beyond what was evaluated in the 2004 Environmental Checklist and analysis and no impacts would occur.

d-e) Because the Project would not increase population or provide employment, it would not require an ongoing water supply. It would also not require ongoing wastewater treatment services.

f-g) The project would not generate substantial additional hazardous waste beyond what was analyzed in the 2004 Environmental Checklist. The potential for the Mercury TMDL and Basin Plan Amendment to generate mercury-containing waste was evaluated in the Environmental Checklist for that project San Francisco Bay Regional Water Quality Control Board (Looker & Johnson 2004a). The Project would not substantially affect municipal solid waste generation or landfill capacities.

XVII. Mandatory Findings of Significance

a) The Project would not degrade the quality of the environment. The proposed Project is intended to benefit wildlife and rare and endangered species by decreasing mercury concentrations in San Francisco Bay aquatic organisms to levels where wildlife that consume aquatic organisms do not experience any harm.

b) The Project would not result in significant adverse impacts. There are no potential adverse impacts that would interact in such a way as to further degrade the environment and no cumulative effects would occur. Adopting the new water quality objectives and revisions of the Mercury TMDL Amendment would require no mandatory findings of significance.

c) The Project would not cause any substantial adverse effects to human beings, either directly or indirectly. The Project is intended to benefit human beings (particularly sport and subsistence fishers) by decreasing San Francisco Bay fish tissue mercury concentrations to levels where humans can consume as much fish as they desire without experiencing adverse health effects.

Appendix C to the Staff Report

RESOLUTION NO. 2005–0060

STATE WATER BOARD

RESOLUTION NO. 2005–0060

REMANDING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN

FOR THE SAN FRANCISCO BAY REGION TO INCORPORATE A TOTAL MAXIMUM DAILY LOAD (TMDL) FOR MERCURY IN SAN FRANCISCO BAY

STATE WATER BOARD
RESOLUTION NO. 2005–0060

REMANDING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY REGION TO INCORPORATE A TOTAL MAXIMUM DAILY LOAD (TMDL) FOR MERCURY IN SAN FRANCISCO BAY

WHEREAS:

1. The San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on June 21, 1995, which was approved by the State Water Resources Control Board (State Water Board) on July 20, 1995 and by the Office of Administrative Law (OAL) on November 13, 1995.

2. On September 15, 2004, the San Francisco Bay Water Board adopted Resolution No. R2–2004–0082 (Attachment 1) amending the Basin Plan to incorporate a TMDL for mercury in the San Francisco Bay.

3. San Francisco Bay Water Board Resolution No. R2–2004–0082 delegated to the San Francisco Bay Water Board Executive Officer authority to make minor, non-substantive corrections to the adopted amendment, if needed, for clarity or consistency. By memorandum dated March 7, 2005, the San Francisco Bay Water Board Executive Officer made such a correction to the amendment (Attachment 2).

4. At the March 16, 2005 Meeting the State Water Board adopted Resolution No. 2005–0026 "Regarding an amendment to the Water Quality Control Plan for the San Francisco Bay region to incorporate a total maximum daily load (TMDL) for mercury in San Francisco Bay." That resolution stipulates that the TMDLs for the control of mercury in the Sacramento-San Joaquin Rivers Delta (Delta), Guadalupe River, and the San Francisco Bay be integrated and that specified issues be addressed.

5. At the June 16, 2005 Meeting, the State Water Board instructed staff to bring the San Francisco Bay mercury TMDL back for a potential vote at the July 2005 meeting and to obtain the following information:
   a. Do the wasteload allocations require the municipal and industrial dischargers to perform at the most appropriate level considering available pollution prevention programs and existing technology?
   b. What is the feasibility and cost of not disposing in the Bay dredged spoils containing mercury concentrations in excess of the sediment target?
   c. What are other federal, state, and local agencies doing to control and remediate mercury in the environment, and how can we all coordinate our efforts to achieve greater reduction?
   d. Consider the feasibility and cost of the suggestions titled, "Option 1.5", made by Baykeeper, Natural Resources Defense Council, and Clean Water Action, in their comment letter dated June 6, 2005.

6. California Water Code (CWC) section 13240 specifies that Regional Water Boards may revise Basin Plans. CWC 13242 requires a program of implementation of water quality objectives.

7. The State Water Board finds that the proposed TMDL for mercury does not adequately address the following issues. The Regional Water Board should:

    a. Modify the wasteload allocations to ensure that they are set at a level that would require municipal and industrial point source dischargers to incorporate the most effective treatment methods and pollution prevention practices practicable for their discharges.
    b. Specify monitoring requirements for methylmercury, the form in which mercury bioaccumulates.
    c. Ensure that wasteload allocations do not result in National Pollutant Discharge Elimination System (NPDES) permits that allow dischargers to discharge concentrations of mercury that contribute to excursions above the mercury narrative water quality objective.
    d. Ensure wasteload allocations take into account the significant variation in effluent quality among the various dischargers and that dischargers of high quality effluent should be recognized for their efforts, while dischargers of lower quality effluent should be required to perform better.
    e. Ensure in-Bay disposal of dredged material containing mercury complies with the requirements of the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, Management Plan 2001(LTMS).
    f. Ensure that all sources of mercury that may affect San Francisco Bay have been adequately identified, such as Bay margin sites and mines within the San Francisco Bay watershed.
    g. Clarify that the proposed bird egg target, as adopted and corrected is either a monitoring target or adopt an acceptable numerical target for the protection of wildlife.

8. The State Water Board supports the TMDL's requirement that the San Francisco Bay area refineries be required to investigate the environmental fate of mercury in crude oil and report findings to the San Francisco Bay Water Board, including the potential pathways by which crude oil mercury could be discharged to the Bay from Bay Area petroleum refining facilities, and the annual mercury loads associated with these discharge pathways.

9. The State Water Board should take an active role in coordinating the efforts to reduce cross-media and cross regional mercury pollution.

10. The United States Environmental Protection Agency (USEPA) has objected to the TMDL in that it is not clear whether the TMDL will result in attainment of the numeric water quality objective of 0.025 micrograms per liter (µg/L) calculated as a four-day average, which is an objective that is applicable to those portions of the San Francisco Bay that are north of the Dumbarton Bridge. The State Water Board finds that the numeric water quality objective is redundant with the existing narrative bioaccumulation objective, in that the purpose of the numeric water column objective was to prevent bioaccumulation in fish tissue.

11. The State Water Board is in the process of developing a statewide numerical fish-tissue objective for mercury.

12. The State Water Board finds that a significant portion of the abandoned mines and mining areas contaminated by mercury in the State of California are situated on federal lands, and therefore the federal government is responsible for remediating these areas to attain water quality standards. The USEPA should actively use its Superfund and other authorities to promptly initiate such investigation and remediation, and cause the other relevant federal agencies to assume their responsibilities for cleaning up their lands.

13. Consistent with finding 12, above, the State Water Board finds that neither the CWA nor the CWC should be used as a means to leverage existing point source discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context "fair share" shall refer to the dischargers' proportional contribution to the impairment.

14. A Basin Plan amendment does not become effective until approved by State Water Board and until the regulatory provisions are approved by OAL. Additionally, the TMDL must be approved by USEPA.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Remands the amendment to the Basin Plan to incorporate a TMDL for mercury in San Francisco Bay adopted under San Francisco Bay Water Board Resolution No. R2-2004-0082 as corrected by the Executive Officer (Attachment 2) for further consideration consistent with this resolution.

2. Directs the San Francisco Bay Water Board to evaluate effective pollution prevention practices used in other states and the pollution prevention or other appropriate programs of each San Francisco Bay discharger, and their potential effectiveness in reducing mercury in their discharges. The San Francisco Bay Water Board shall revise the TMDL to incorporate requirements for appropriate programs and practices into the TMDL, and require all dischargers to aggressively implement appropriate pollution avoidance practices that are most effective at eliminating or reducing mercury concentrations in their effluent.

3. Directs the San Francisco Bay Water Board to evaluate and consider the effectiveness of any existing wastewater treatment technology that enhances the removal of mercury. The San Francisco Bay Water Board shall revise the TMDL to establish individual wasteload allocations, after reconsidering the appropriateness of the policy assumptions used by the Regional Water Board to derive the original wasteload allocations. In establishing such wasteload allocations, the San Francisco Bay Water Board shall incorporate provisions that acknowledge the efforts of those point sources whose effluent quality demonstrates good performance, and require improvement by other dischargers.

4. In carrying out the requirements of this resolution, the Regional Water Board shall comply with the requirements of CWC section 13360 regarding specifying the manner of compliance with Regional Water Board orders.

5. Directs the San Francisco Bay Water Board to revise the TMDL to require inclusion in the next round of NPDES permits or in the watershed NPDES permits monitoring for, and determination of the relative proportion of, methylmercury in effluent discharges.

6. Directs the San Francisco Bay Water Board to ensure that in-Bay disposal of dredged material containing mercury complies with the requirements of the Long Term Management Strategy Plan (LTMS).

7. Directs the San Francisco Bay and Central Valley Water Boards to create a watershed legacy mercury inventory and establish a priority list for addressing these sources. The Water Boards shall also propose potential methods or strategies to remediate priority sources.

8. Directs State Water Board staff to develop a State policy for water quality control that establishes alternative methods to allow dischargers to meet mercury effluent limitations that are directed to preventing contributions to excursions above water quality standards. The policy shall allow dischargers to perform other activities aside from eliminating more mercury from their discharges than they would be required to remove by applicable technology-based effluent limitations. This policy shall require more rigorous activities for: (a) dischargers not in compliance with their wasteload allocations and/or other applicable criteria or objectives; and (b) dischargers seeking to increase their mercury load. The policy shall include provisions that recognize the efforts of those dischargers who are meeting or outperforming their wasteload allocations, and that recognize the expenditures made by dischargers who are employing higher treatment levels. The policy shall not include requirements that would leverage existing point source discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context "fair share" shall refer to the dischargers' proportional contribution to the impairment. The policy shall also include provisions that prevent localized disparate impacts.

9. The San Francisco Bay Water Board shall include requirements in the TMDL that any new or modified NPDES permit for dischargers shall contain a reopener to implement Resolved No. 7, above.

10. Directs the San Francisco Bay and Central Valley Water Boards to investigate ways, consistent with their regulatory authority, to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay-Delta caught fish, such as subsistence fishers and their families.

11. Directs the San Francisco Bay Water Board to either develop an appropriate and allocable numerical target that is protective of wildlife, or clarify that the existing bird-egg target is a monitoring target, and that the TMDL will be revised if results of such monitoring reveal that the beneficial uses are not being protected.

12. Directs the San Francisco Bay Water Board to revise, withdraw, or take other appropriate action to address the marine waters mercury four-day average water quality objective. In so doing the Regional Water Board shall comply the provisions of Clean Water Act section 303,

including but not limited to subparagraph (c)(2)(B), which require the adoption of numerical criteria for toxic pollutants.

13. Directs the San Francisco Bay Water Board to bring a revised TMDL, consistent with this resolution, back to the State Water Board within nine months of the date of this resolution. The San Francisco Bay Water Board shall report its progress in complying with this resolution to the State Water Board within six months of the date of this resolution.

BE IT FURTHER RESOLVED THAT:

The State Water Board:

14. Shall dedicate funds to the Regional Water Board(s) to assist in compliance with this resolution, including for contracting with the United States Geological Survey or other appropriate agencies, to examine the mines and areas impacted by mining from a water quality perspective.

15. Shall commence efforts to coordinate with the Air Resources Board and other relevant agencies to address air deposition of mercury to areas that could affect the quality of Waters of the State.

16. Shall, pursuant to their offers, convene a meeting with the USEPA, Western States Petroleum Association, the Bay Area Clean Water Agencies, and with the San Francisco Bay and Central Valley Water Boards and other interested stakeholders, to investigate methods of addressing and financing the redress of mercury from the mining legacy.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 7, 2005.

AYE: Arthur G. Baggett
Richard Katz
Gerald D. Secundy
Tam M. Doduc

NO: Peter S. Silva

ABSENT: None.

ABSTAIN: None.

Debbie Irvin
Clerk to the Board

ATTACHMENT 24

Total Maximum Daily Load for PCBs in San Francisco Bay

Final Staff Report
for Proposed Basin Plan Amendment

California Regional Water Quality Control Board

San Francisco Bay Region

February 13, 2008

San Francisco Bay Regional Water Quality Control Board
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1. Introduction

This Staff Report presents the supporting documentation for a proposed Basin Plan amendment that will be considered by the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board) that establishes a Total Maximum Daily Load (TMDL) and implementation plan for Polychlorinated Biphenyls (PCBs), including PCBs with dioxin-like properties, for all of San Francisco Bay. The TMDL is based on attainment of a fish tissue target PCBs concentration protective of human health, wildlife, and aquatic life. This report contains the results of analyses of PCBs impairment assessments, sources and loadings, linkage analyses, load reductions, and implementation actions.

The Clean Water Act requires California to adopt and enforce water quality standards to protect San Francisco Bay. The Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) delineates these standards, which include beneficial uses of waters in the Region, numeric and narrative water quality objectives to protect those uses, and provisions to enhance and protect existing water quality (antidegradation). The California Toxics Rule (CTR) is the basis for the numeric water quality criteria for PCBs in San Francisco Bay. Section 303(d) of the Clean Water Act requires states to compile a list of “impaired” water bodies that do not meet water quality standards and to establish a TMDL for the pollutant that causes impairment. The proposed TMDL and implementation plan are designed to resolve PCBs impairment in all segments of San Francisco Bay.

For the purpose of the report, all segments of San Francisco Bay include the portion of the Sacramento and San Joaquin Delta in the San Francisco Bay Region, and all portions and contiguous tidal zones of Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central Bay, Lower Bay and South Bay. Throughout this report, the terms San Francisco Bay and Bay are inclusive of all these segments.

This report provides the rationale and the technical basis for the required TMDL elements and associated implementation plan. This report meets the requirements of the California Environmental Quality Act (CEQA), including the preparation of a checklist (Appendix A) for adopting Basin Plan amendments and serves in its entirety as a substitute CEQA environmental document. It builds on earlier reports on sources and loadings (June, 2000), impairment assessment (June, 2001) and a Project Report (January 2004). It also builds on the Draft Staff Report (June 23, 2007 version) that was circulated for a 60-day public review period and testimony hearing that was held on September 12, 2007, and the Revised Draft Staff Report (December 3,, 2007 version) that was circulated for a 45-day public review. This report was developed with consideration of stakeholder input, including incorporation of comments received on the Project Report and comments received on the Draft Staff Report and Revised Draft Staff Report, and has been updated with new information.

The process for establishing a TMDL includes compiling and considering available data and information, conducting appropriate analyses relevant to defining the impairment problem, identifying sources, and allocating responsibility for actions to resolve the impairment. This report is organized into sections that reflect background information, the key elements of the TMDL process, and regulatory analyses required to adopt the amendment.

In addition, the scientific basis of the Basin Plan amendment was subjected to external scientific peer review. This step is required under §57004 of the Health and Safety Code, which specifies that an external review is required for work products that serve as the basis for a rule,

"…establishing a regulatory level, standard, or other requirements for the protection of public health or the environment." The scientific basis of the PCBs TMDL, as presented in the Staff Report, was evaluated by two peer reviewers, Prof. David O. Carpenter, M.D., and Prof. Kevin J. Farley, who concluded that the scientific basis of the proposed Basin Plan amendment is based on sound scientific knowledge, methods, and practices.

Section 2 presents the problem statement that the project is based on and defines the project, why it is necessary and its objectives. Section 3 presents information about the physical setting of San Francisco Bay, including climate, hydrology, geology and biology. Section 4 discusses the chemistry and historical use of PCBs. Section 5 provides a discussion of the water quality standards that are applicable to San Francisco Bay. Section 6 presents the results of the impairment assessment that identified adverse impacts to beneficial uses in the Bay.

Section 7 presents our understanding of the sources of loading of PCBs to the Bay. Sources and loading are identified as internal or external to the Bay. Internal sources reflect the current reservoir of PCBs found in sediments or the water column. External sources reflect loads coming into the Bay, for example, from urban runoff or wastewater treatment plants.

Section 8 presents the derivation of the numeric target. Section 9 presents the linkage analysis which describes the relationship between PCBs sources and the proposed target, and estimates the bay's capacity to assimilate PCBs while still meeting the numeric fish tissue targets. Section 10 presents the proposed TMDL and the allocations of the TMDL to external sources.

Section 11 presents the Implementation Plan which includes actions and requirements deemed necessary to implement the external source allocations and actions to manage internal sources of PCBs. It specifies monitoring activities to demonstrate attainment of allocations and the numeric target. It also presents an adaptive implementation strategy to review implementation progress and to evaluate any new information generated, which may lead to improved implementation actions, and refinement of the TMDL, the numeric target or the allocations in the future.

Section 12 presents the results of CEQA analyses including an environmental impact assessment and an evaluation of alternatives to the proposed Basin Plan amendment. Section 13, References, lists all the information sources cited and relied upon in preparation of this report.

2. Project Definition

This section presents the problem statement upon which the proposed Basin Plan amendment project is based. It also presents the project definition and objectives which form the basis of the assessment required by the CEQA.

2.1 Problem Statement

All San Francisco Bay segments were initially placed on the California 303(d) list in 1998 for total PCBs and dioxin-like PCBs due to an interim health advisory for fish consumption. The 1998 listing applies to the following Bay segments: Sacramento and San Joaquin Delta, Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central Bay, Lower Bay and South Bay. The 303(d) list was revised in 2002 to include specific locations in the Lower Bay segment. These listing were sustained on the 2006 303(d) list version (Table 1; Figure 1). This TMDL applies to all Bay segments.

As further discussed in the Impairment Assessment in Section 6, water quality objectives that are not attained include the narrative water quality objective which states that controllable water quality factors shall not cause a detrimental increase in toxic substances found in bottom sediments or aquatic life and the numeric water quality criterion of 0.00017 ug/L total PCBs in water. The existing beneficial use that is not fully supported due to elevated PCBs levels in fish is commercial and sport fishing. However, this TMDL is designed to ensure protection of all beneficial uses of the Bay including but not limited to preservation of rare and endangered species, estuarine habitat, and wildlife habitat.

Table 1-San Francisco Bay Water Segments on 2006 303(d) List for PCBs

Water Body Names	Hydrologic Unit	Total Water Body Size (acres)
Sacramento/San Joaquin Delta	207.100	41,736
Suisun Bay	207.100	27,498
Carquinez Strait	207.100	5,657
San Pablo Bay	206.100	68,349
Richardson Bay	203.130	2,439
San Francisco Bay, Central	203.120	70,992
San Francisco Bay, Lower (including)	204.100	79,293
Central Basin, San Francisco	204.400	40
Mission Creek	204.400	8.5
Oakland Inner Harbor (Fruitvale site)	204.200	0.93
Oakland Inner Harbor (Pacific Dry-Dock Yard 1 site)	204.200	1.8
San Francisco Bay, South	205.100	21,669

(2006 CWA Section 303(d) list)

2.2 Project Definition

The project is the adoption of a proposed Basin Plan Amendment to establish a TMDL and a phased implementation plan to attain PCBs water quality standards in all segments of San Francisco Bay. The Water Board is obligated under Section 303(d) of the Clean Water Act to

develop a TMDL for San Francisco Bay to address PCBs impairment. The following components form the basis of the proposed regulatory provisions and define the project:

1. Numeric target for PCBs concentrations in fish tissue of 10 ug/kg.
2. Total maximum average yearly PCBs loads to San Francisco Bay of 10 kg/year.
3. Allocation of the total maximum average yearly PCBs load among the various external PCBs sources to San Francisco Bay.
4. Plan to implement the TMDL that includes actions to reduce PCBs loads to achieve external load allocations and actions to manage internal sources of PCBs in San Francisco Bay.
5. Monitoring program to evaluate progress in meeting the numeric target and load allocations.
6. Plan and schedule for studies to improve technical understanding relevant to the PCBs TMDL and implementation plan, and for reviewing progress toward meeting targets, implementing actions and evaluating continued appropriateness and effectiveness of actions.

Figure 1-San Francisco Bay Embayments

2.3 Project Objectives

The proposed Basin Plan Amendment is intended to reduce existing and future PCBs discharges to San Francisco Bay associated with controllable water quality factors. Controllable water quality factors are those resulting from human activities that can influence water quality and be reasonably controlled through prevention, mitigation, or restoration. Specific objectives of the project are as follows:

1. Attain numeric PCB water quality criteria and the narrative bioaccumulative water quality objective established for the Bay in as short a time frame as feasible.
2. Protect beneficial uses of San Francisco Bay including but not limited to sport fishing and wildlife habitat.
3. Set target(s) to attain relevant water quality standards in all parts of the Bay.
4. Reduce loading of PCBs to the Bay from external sources and reduce uptake from sediments.
5. Continue to make use of the experience and expertise of the Water Board and its stakeholder community regarding local watersheds and PCBs sources.
6. Initiate actions to reduce PCBs discharges, while continuing to accommodate new information on PCBs fate in the environment.
7. Establish a decision-making framework where management actions evolve to adapt to future knowledge or conditions.
8. Favor actions that have a multi-contaminant benefit and promote efficiencies in water quality regulation and resource management.
9. Avoid actions that will have unreasonable costs relative to their environmental benefits.
10. Comply with the antidegradation requirements of State Board Resolution No. 68-16 and federal antidegradation regulations (40 CRF 131.12).
11. Base decisions on readily available information on ambient conditions, PCBs loads, fish consumption patterns, and PCBs fate and effects.
12. Consider site-specific factors relating to PCBs sources, ambient conditions, watershed characteristics, and response to management actions.
13. Avoid arbitrary decisions and speculation when computing loads, setting targets, setting allocations, determining implementation actions, and defining a margin of safety.
14. When selecting from a range of options, select an environmentally protective option as a means of building an implicit margin of safety into the TMDL.
15. Consider natural, seasonal, and inter-annual variability in determining the manner of implementing the load allocations.
16. Avoid imposing regulatory requirements more stringent than necessary to meet the targets designed to attain water quality standards.
17. Provide details of an implementation plan that includes: a description of the nature of actions necessary to meet allocations and targets and thereby achieve water quality standards; a schedule for actions to be taken; and a description of monitoring to be

undertaken to determine progress toward meeting allocations, targets and water quality objectives.

18. Provide interim risk management programs to protect recreational sport fishing anglers
19. Comply with the Clean Water Act requirement to adopt a TMDL for a 303 (d) listed impaired water body.

3. Setting

San Francisco Bay is located on the Central Coast of California and marks a natural topographic separation between the northern and southern coastal mountain ranges. The Bay functions as the only drainage outlet for waters of the Central Valley.

Because of its highly dynamic and complex environmental conditions, the Bay system supports an extraordinarily diverse and productive ecosystem. The basin's deepwater channels, tidelands, and marshlands provide a wide variety of habitats that have become increasingly vital to the survival of several plant and animal species. The basin sustains communities of crabs, clams, fish, birds and other aquatic life and serves as an important wintering site for migrating waterfowl.

3.1 Physical Setting

San Francisco Bay is a large coastal embayment receiving fresh water from Central Valley rivers via the Delta and from local small tributaries (Figure 2). The Bay is relatively shallow with an average depth of around 6 meters and a median depth of about 2 meters at mean lower low water (Conomos, 1979). Narrow channels 10 to 20 meters deep incise broad expanses of the Bay floor. Deeper sections of channels such as the Golden Gate (110 meters) and Carquinez Strait (27 meters) are topographic constrictions where depths are maintained by scouring from tidal currents. Due to the extent of shallow areas, seasonal winds cause significant sediment resuspension and movement in the Bay.

The Bay is subdivided in segments: Sacramento and San Joaquin Delta, Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central Bay, Lower Bay and South Bay. The northern reach of the San Francisco Bay (Suisun Bay, Carquinez Strait, and San Pablo Bay) is partially to well-mixed while the South Bay (Lower and South Bay) is a tidally oscillating lagoon. The Central Bay is most influenced by water exchange with the ocean.

3.2 Climate

The climate of San Francisco Bay plays an important role in determining the environmental conditions found in the Bay. The Bay has a Xeric (Mediterranean) moisture regime characterized by cool, dry summers and mild, wet winters. The amount and timing of precipitation, air temperature, and wind patterns influence the Bay's freshwater inflow, salinity, currents, and suspended sediment concentrations.

The sun affects the Bay by promoting photosynthesis and warming the shallow areas, which in turn influences carbon dynamics in the water column and sediments. Carbon dynamics and the formation of humic substances (natural organic matter) influence the partitioning of PCBs in aquatic environments between sediments, water, and biota.

The Bay is subjected to strong southwest summer winds. These strong winds exert stress on the water surface, which generates waves. Wind-generated waves resuspend sediments creating turbid conditions and dispersing sediments throughout the Bay, thereby affecting movement of PCBs in the Bay. Waves also tend to mix and aerate the water, which also influences carbon fluxes in the Bay.

PCBs mainly partition into the organic carbon phase such as the organic matter in sediments, or into the lipid fraction of biota. A better understanding of sediment movement and organic carbon fluxes is essential to understanding distribution and long-term fate of PCBs in the Bay. Our

ability to predict the fate of PCBs on a fine scale will require improved understanding of sediment movement and carbon flux throughout the Bay.

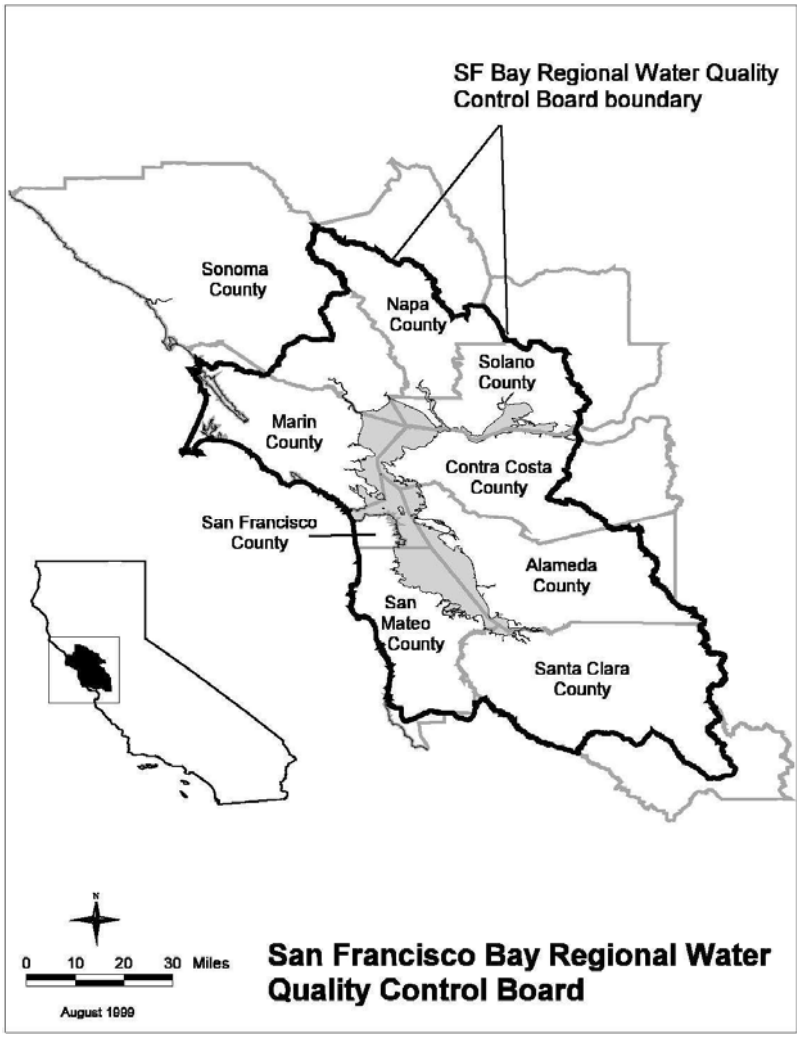

Figure 2-San Francisco Bay Region

3.3 Hydrology

Freshwater inflows, tidal mixing, and their interactions largely determine variations in the hydrology of the Bay. Hydrology has profound effects on biota that live in the Bay because it determines the salinity in different portions of the Bay.

The Bay receives 90 percent of its fresh water inflows from streams and rivers draining the Central Valley watershed and about 10 percent from local tributaries surrounding the Bay (SFEP, 1992a). The Sacramento and San Joaquin Rivers carry about 60 percent of the state runoff draining around 152,500 square kilometers (km^2) or 40 percent of California's surface area (Conomos et al., 1985). Of the fresh water flows entering the Bay from the Central Valley watershed, the Sacramento River typically accounts for 80 percent, the San Joaquin River 15 percent, and smaller rivers and streams the remainder.

The northern reach of the Bay (comprised of Suisun Bay, Carquinez Strait, and San Pablo Bay) is geographically and hydrologically distinct from the Central and South Bays. The northern reach is a partially to well-mixed waterbody (depending on the season) that is dominated by seasonally varying delta inflow. The South Bay is a tidally oscillating, lagoon-type Bay, where variations are determined by water exchange with the northern reach and the ocean. Water residence times are much longer in the South Bay than in the North Bay.

Response time of the Bay to PCBs source control will depend on the sediment hydrodynamics of the Bay, such as its rate of flushing, sediment dynamics, and the variability in inflow. The effect of these parameters over a long time scale needs to be accounted for in determining the long-term fate of PCBs in the Bay.

3.4 Geology

San Francisco Bay is located within the Coast Ranges of California. The Coast Ranges are characterized by northwest trending longitudinal mountain ranges and valleys formed by faulting and folding (Howard, 1979).

In aquatic environments, PCBs are mainly associated with sediments. Therefore, understanding past, current, and future sedimentation and sediment movement is essential for predicting the fate and transport of PCBs in the Bay.

Delta inflow from the Central Valley watershed is the major source of new sediment input into the Bay. Most new sediment (approximately 80 percent) originates in the Sacramento-San Joaquin River drainage and enters primarily as suspended load during the high winter inflows. Much of the winter sediment load from the Sacramento and San Joaquin rivers initially settles out in San Pablo Bay. During the low flow summer months, wind-generated waves and tidal currents resuspend the previously deposited sediment and redistribute it over a wider area.

The Bay's sediment mass balance was greatly altered by the advent of hydraulic mining in the Sierras in the late 1800's. The resulting large increase in sediment loads to the Bay due to hydraulic gold mining affected both the mudflat and sub-tidal areas (SFEP, 1992a). Deposition of fine sediments originally raised mud elevations several meters in Suisun Bay, and the elevation of mud migrated as a "mud wave" to San Pablo Bay and the Central Bay over the past century. During the time of highest PCBs production and use, the continual deposition of sediment buried PCBs being released into the Bay from land and maritime-based activities. Therefore, a large reservoir of PCBs was created in the Bay sediments.

Recent studies indicate that, in portions of the Bay, sediments are eroding (Jaffe et al., 1998). Sediments deposited during the period of Bay Area industrialization are now being uncovered due to a decrease of sediments entering the Bay from the Sacramento and San Joaquin rivers. This erosion could uncover contaminated sediments, resulting in increased availability of PCBs to the food web. Even if all current PCBs sources to the Bay are eliminated, exposure of historically contaminated sediment may turn out to be a significant PCBs source to organisms.

Sediment dynamics influence the distribution, transport and fate of PCBs in the Bay. Bathymetry is a factor affecting sediment dynamics. Broad shallows incised by narrow channels characterize San Pablo Bay, Suisun Bay, and the South Bay. These shallower areas are more prone to wind-generated currents and sediment resuspension and deposition than deeper areas, such as the Central Bay. Near-shore shallow areas are likely repositories of larger reservoirs of PCBs, due to their proximity to historical land-based industrial activities.

Currents created by tides, freshwater inflows, and winds cause erosion and transport of sediments in the Bay. Tidal currents are usually the dominant observed currents in the Bay. Generally, tides appear to have a significant influence on sediment resuspension during the more energetic spring tide when water column sediment concentrations naturally increase.

Strong seasonal winds create circulation and mixing patterns and add to tide- and river-induced current forces. It has been estimated that about 160 million cubic yards (mcy) of sediments are resuspended annually from shallow areas of the Bay by wind-generated waves (U.S. ACE, 1998), while 8 to 10 mcy enter the Bay from the Central Valley watershed and 4 to 8 mcy leave the Bay through the Golden Gate (Table 2). These estimates of sediment inputs have been updated (Schoellhamer et al., 2005), but these relative estimates are used to illustrate the substantial degree of sediment resuspension compared to gains and losses. These are the only estimates of sediment resuspension volumes. By comparison, between 2001 and 2005, an average of 1.8 mcy of dredged sediments was disposed in the Bay as a result of maintenance dredging activities between 2001 and 2005 (DMMO, 2006). The current estimate of the sediment budgets indicates a net loss of 2.4 mcy of sediments from the Bay (Schoellhamer et al., 2005).

Table 2-Sediment Movement in San Francisco Bay

Pathway	Sediment Volume (10^6 cu yd)
Inflow from Central Valley	6.9-8.1
Inflow from other tributaries	1.1-2.4
Outflow through the Golden Gate	4.2-8.1
Resuspension	160

(U.S. ACE, 1998)

Our understanding of sediment dynamics is based on general Bay-wide models. These models are based on Bay-wide averages and do not consider site-specific PCB-Contaminated sites in the near-shore environment.

3.5 Biology

Many species of birds, fish, and mammals regularly reside in the Bay, including a number of endangered, threatened, and rare wildlife species. The Bay supports a diversity of habitat types resulting in a diversity of wildlife species. High food productivity in different habitats types allow some species to achieve substantial numbers. Tidal salt marshes and open waters sustain aquatic plants and phytoplankton that feeds the Bay food web.

Open Waters

Open waters include various habitat types, such as subtidal waters and sloughs. Open waters support benthic and pelagic invertebrates, fish, waterbirds, and seals. Invertebrates serve as prey for large fish populations representing several different trophic levels, including Pacific herring, northern anchovy, Pacific sardine, staghorn sculpin, several species of perch, English sole, and California halibut. Many of these fish species in turn serve as prey to piscivorous birds such as the Forster's tern, California least tern, American white pelican, brown pelican, and double-crested cormorant. Waterfowl such as greater scaup, lesser scaup, canvasbacks, and

surf scoters dive for bivalves, crustaceans, and other invertebrates in shallower open waters. Bird diversity in the open Bay waters is fairly low, as the species of birds that can exploit the subtidal areas are limited to those that can forage from the air (*e.g.*, terns) or under water (*e.g.,* scoters) and those that can swim.

Sloughs and channels provide important habitat for large numbers of benthic and pelagic invertebrates and fish. These organic-rich channels serve as important nurseries and feeding areas for estuarine fish. Diving ducks generally avoid the smaller tidal channels but are found in abundance, particularly during their non-breeding season, near the mouths of the larger sloughs, and in open waters. Terns often forage in the larger channels, and several species of herons and egrets forage in the shallower channels for fish. Many shorebirds feed along the exposed flats along tidal channels at low tide, as do rails and other tidal marsh birds.

The Bay's open water provides shallow and deep-water habitat throughout San Francisco Bay. Sediments in these areas range from clays to sand. The dominant plants are phytoplankton, green algae and blue green algae (SFEP, 1992b). Extensive phytoplankton growth in the water column occurs in Suisun, San Pablo and South Bays. Open waters also provide habitat for benthic (bottom dwelling) organisms, fish, and birds. Other important habitats include mudflats, tidal and brackish marsh, and wetlands. Large numbers of benthic organisms, such as clams, worms, mussels, shrimps, and crabs, reside in these habitats. Bay-dwelling fish, such as shiner surfperch, white croaker, and jacksmelt, are known to feed on these benthic organisms (Goals Project, 2000).

The makeup of benthic communities varies highly both spatially and over time (SFEP, 1992b; Thompson et al., 2000). A better understanding of the factors controlling benthic community composition and dynamics would further our understanding of the food web in general, and the uptake and transfer of PCBs in the food web. Benthic organisms are a large part of the diet for the Bay fish species with the highest PCBs concentration (Roberts et al., 2002). Modeling of PCBs in the food web of in the Bay has been performed providing a linkage between PCBs concentrations in sediment, water and biota (Gobas and Wilcockson, 2003; Gobas and Arnot, 2005).

Mudflats

Intertidal mudflats are expanses of minimally vegetated to unvegetated mud in the lower marsh zone. Most of this habitat occurs just beyond the edge of fully vegetated wetlands, and between channels and edges of wetlands within sloughs. Shallow waters generally cover mudflats during high tide, but they are uncovered at low tide. Narrow mudflats occur along the edges of the tidal sloughs and channels, while larger mudflats occur at the mouths of sloughs and along the edge of the Bay.

Mudflats support a large community of diatoms, worms, shellfish, and algae. Organic debris from tidal marshes, phytoplankton, algae, and diatoms are responsible for the large numbers of benthic invertebrates on mudflats. Crustaceans, polychaete worms, gastropod and bivalve mollusks, and other invertebrates live on or just below the surface of the mud. During high tides, mudflats provide foraging habitat for many species of fishes and wading birds. During low tides, large numbers of shorebirds feed in the mudflats. These mudflats are a key reason for the importance of the San Francisco Bay Area to West Coast shorebird populations.

Smaller channels in brackish and salt marshes are the favored feeding areas for the state and federally endangered California clapper rail. Shorebirds, gulls, terns, American white pelicans,

and ducks often use exposed mudflats as roosting or loafing areas when available, as do Pacific harbor seals. When the tides rise, most of these birds return to roosting areas in salt ponds or other alternate habitats; the seals move to open waters.

The state and federally endangered salt marsh harvest mouse, the salt marsh wandering shrew, and the California vole reside where pickleweed is present. California clapper rails nest in cordgrass, denser stands of pickleweed, and marsh gumplant, in both salt and brackish tidal marshes.

Tidal marshes are important to the aquatic components of the Bay' overall ecosystem, not just to the species that reside and/or feed there. Organic debris from tidal marshes forms much of the foundation of the Bay food web.

Brackish Marsh
Brackish marshes occur in the low-to-mid intertidal reaches of sloughs and creeks draining into the Bay. Their vegetation is subject to tidal inundation diluted by freshwater flows.

The vegetation in brackish marsh habitat is dominated by plant species adapted to intermediate (brackish) salinities, including short bulrushes such as alkali bulrush and saltmarsh bulrush. Other plants found in brackish marshes include alkali heath, cattails, spearscale, and pickleweed. Large patches of the invasive pepperweed also occur within the terraced areas in these middle reaches.

Brackish marshes support many of the wildlife species that use salt marsh and freshwater marsh habitats. Brackish marshes are particularly important for anadromous fish (migrating from saline to fresh water to spawn) and catadromous fish (migrating from fresh to saline water to spawn) and invertebrates such as shrimp.

Most terrestrial and wetland wildlife species are tolerant of a range of salinities, and are affected more by habitat structure and food availability than by salinity. Brackish marshes support most of the bird species occurring in both salt and freshwater marshes. California clapper rails occur in brackish marshes, and likely breed in these marshes. The often taller, denser vegetation in brackish marshes supports large densities of breeding song sparrows, saltmarsh common yellowthroats, and marsh wrens, and large numbers of Virginia rails and soras during migration and winter.

4. Polychlorinated Biphenyls

PCBs are a class of organic compounds produced as complex mixtures for a variety of uses, including dielectric fluids in capacitors and transformers. PCBs were manufactured commercially by the Swann Chemical Company beginning in 1929. Monsanto acquired the process in 1935 and continued PCBs production until 1977 (Erickson, 1997).

In the United States, discovery of PCBs as ubiquitous environmental contaminants led to their initial regulation under the Toxic Substances Control Act (TSCA) in 1976. In 1978, Congress banned the manufacture, processing, and distribution in commerce of PCBs. Use of PCBs was restricted to totally enclosed applications, and non-totally enclosed applications were only allowed with the United States Environmental Protection Agency (U.S. EPA) exemptions. In 1979, U.S. EPA passed regulations that defined totally enclosed applications as intact, non-leaking electrical equipment. U.S. EPA banned the manufacture and distribution in commerce of materials containing any detectable PCBs in 1984 (Erickson, 1997).

Although PCBs uses have been phased out since the ban, large quantities have remained in use, and some PCBs are still in use today (Table 3). Therefore, the potential for continued PCBs release to the environment remains. It is not known how much unreported PCBs are still being used today nor how much were used in the past in a manner such that they could be currently released to the environment.

Table 3-Self Reporting of PCBs Uses in the Bay Area (1999)

Company	City	Number of Transformers	PCBs Mass (kg)
USS-POSCO Industries	Pittsburg	65	141,494
Quebecor Printing San Jose, Inc.	San Jose	5	32,094
NASA	Moffett Field	17	7,052
Gaylord Container Corp	Antioch	2	6,078
General Chemical	Pittsburg	3	4,800
Rhodia Inc.	Martinez	4	3,356
DOT Maritime Administration Suisun Bay Reserve Fleet	Benicia	3	1,048
Macaulay Foundry, Inc.	Berkeley	1	913
Stanford Linear Accelerator Center	Menlo Park	1	1

http://www.epa.gov/opptintr/pcb/xform.htm

4.1 Chemical Structure

PCBs are a family of chlorinated organic compounds formed by two benzene rings linked by a single carbon-carbon bond (Figure 3). Various degrees of substitution of chlorine atoms for hydrogen are possible on the remaining 10 benzene carbons. There are 209 possible arrangements of chlorine atoms on the biphenyl group. Each individual arrangement or compound is called a congener. Groups of congeners with the same number of chlorine atoms are called homologs. Thirteen of the 209 congeners are known to show toxic responses similar to those caused by 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD), the most toxic dioxin compound (Van den Berg et al, 1998).

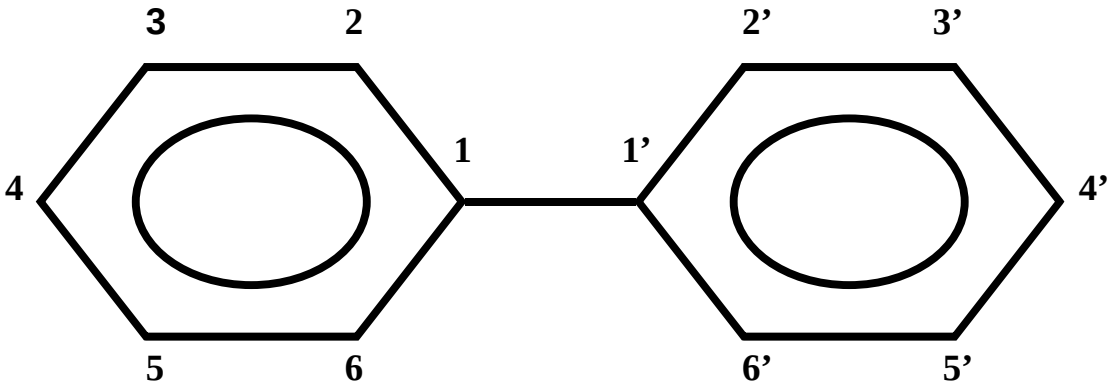

Figure 3-Structure of PCB Molecule

PCBs were mainly marketed as Aroclors in the United States. Aroclors are mixtures of congeners with varying numbers of chlorine atoms (Table 4). Aroclors were the most abundant PCBs mixtures manufactured and used in the United States. The numbering scheme for Aroclors is based on their structure and mixture: the first two digits represent the number of carbon atoms (12) while the second two numbers denote the percent chlorine by weight. Aroclor 1016 is an exception and has a chlorine weight content of 40 to 42 percent (ATSDR, 2000).

Table 4-Percentage of PCB Homolog in Aroclors

Homolog	Aroclor						
	1016	1221	1232	1242	1248	1254	1260
Biphenyl		10					
Mono-CBs	2	50	26	1	--	--	--
Di-CBs	19	35	29	13	1	--	--
Tri-CBs	57	4	24	45	21	1	--
Tetra-CBs	22	1	15	31	49	15	--
Penta-CBs	--	--	--	10	27	53	12
Hexa-CBs	--	--	--	--	2	26	42
Hepta-CBs	--	--	--	--	--	4	38
Octa-CBs	--	--	--	--	--	--	7
Nona-CBs	--	--	--	--	--	--	1
Deca-CBs	--	--	--	--	--	--	--

(ATSDR, 2000)

Although the congener compositions of manufactured Aroclors are known, the fate of the various congeners in the environment is not as well understood. Fate and stability of congeners vary with the degree and location of chlorination, making source identification of environmental PCBs difficult.

4.2 Chemical and Physical Properties

PCB congeners vary markedly in their chemical and physical properties depending on the degree and position of chlorination. Important properties such as non-flammability, low electrical conductivity, high thermal stability, and high boiling point, make PCBs highly stable and persistent in the environment. PCBs are also soluble in non-polar organic solvents and biological lipids, hence their tendency to bioaccumulate in living organisms.

PCBs are generally resistant to degradation, and are strongly resistant to acids and alkalis. PCBs have a low solubility, low volatility (small Henry's Law constant), and increasing affinity for organic matter (increasing log K_{ow}) with increasing chlorination (Table 5). Note that organic compounds with a log K_{ow} greater than 3.5 are considered to have a large potential to bioaccumulate (U.S. EPA, 1985). Biodegradation rates of PCBs also vary greatly depending on the degree and location of chlorination, and redox conditions (ATSDR, 2000).

PCB congeners exhibit of range of properties, which affect their fate and residence time in the environment. Solubility of PCBs in water generally decreases with increased chlorination (Table 5). PCBs adsorption to sediment, denoted by increasing K_{ow}, generally increases with increasing degree of chlorination (Table 6) or increasing sediment organic carbon concentration (ATDSR, 2000). PCBs in aquatic systems are therefore usually found in much greater mass in the sediments than in the water column. Increasing log K_{ow} is accompanied by an increase in the tendency to bioaccumulate in aquatic organisms. Bioconcentration factor (BCF) increases a thousand-fold when going from monochlorobiphenyl to decachlorobiphenyl. Evaporation rates decrease with increasing degree of chlorination (Table 6). In general, the lower chlorinated PCB congeners are removed faster from the aquatic environment than the more chlorinated PCBs as the lower chlorinated congeners are not sorbed as strongly to sediments and are more readily volatilized.

Table 5-Selected Properties of PCBs as Aroclors

Aroclor	Density (g/cm^3)	Solubility (mg/L)	Log K_{ow}	Henry's Law Constant ($atm\text{-}m^3/mole$)
1016	1.37	0.42	5.6	2.9×10^{-4}
1221	1.18	0.59	4.7	3.5×10^{-3}
1232	1.26	0.45	5.1	No Data
1242	1.38	0.34	5.6	5.2×10^{-4}
1248	1.44	0.06	6.2	2.8×10^{-3}
1254	1.54	0.06	6.5	2.0×10^{-3}
1260	1.62	0.08	6.8	4.6×10^{-3}
1262	1.64	0.05	No Data	No Data
1268	1.81	0.3	No Data	No Data

Kow = Octanol-water partitioning coefficient (increasing number indicates decreasing water solubility)
(ATSDR, 2000)

Table 6-Selected Properties of PCBs as Homologs

Isomer Group	Melting Point (^oC)	Vapor Pressure (Pa)	Water Solubility at 25^oC (g/m^3)	log K_{ow}	Approximate BCF in Fish	Approximate Evaporation Rate at 25^oC (g/m^2hour)
Biphenyl	71	4.9	9.3	4.3	1000	0.92
MonoCB	25-78	1.1	4	4.7	2500	0.25
DiCB	24-149	0.24	1.6	5.1	6300	0.065
TriCB	28-87	0.054	0.65	5.5	1.6×10^4	0.017
TetraCB	47-180	0.012	0.26	5.9	4.0×10^4	4.2×10^{-3}
PentaCB	76-124	2.6×10^{-3}	0.099	6.3	1.0×10^5	1.0×10^{-3}
HexaCB	77-150	5.8×10^{-4}	0.038	6.7	2.5×10^5	2.5×10^{-4}
HeptaCB	122-149	1.3×10^{-4}	0.014	7.1	6.3×10^5	6.2×10^{-5}
OctaCB	159-162	2.8×10^{-5}	5.5×10^{-3}	7.5	1.6×10^6	1.5×10^{-5}
NonaCB	183-206	6.3×10^{-6}	2.0×10^{-3}	7.9	4.0×10^5	3.5×10^{-6}
DecaCB	306	1.4×10^{-6}	7.6×10^{-4}	8.3	1.0×10^7	8.5×10^{-7}

(Erickson, 1997)

The biggest reservoir of PCBs in aquatic systems is sediments rather than the water column. As the tendency of PCBs to adsorb to sediments increases with increasing log K_{ow}, their persistence in surface waters increases. This property enhances the importance of bottom-dwelling organisms in the food-web transfer of PCBs. This is also the case for decreasing water solubility and decreasing volatility (decreasing vapor pressure). Many physical and chemical factors affect this persistence and transfer, ultimately limiting our ability to predict the fate and transport of PCBs in aquatic environments.

4.3 Production and Uses

PCBs were produced in very large quantities both within and outside the United States. Although their uses in capacitors and transformers are well known, PCBs were used in a wide variety of applications including some involving direct contact with the environment.

Production

In the United States, commercial PCBs production started in 1929 and continued until 1977 (ATSDR, 2000). The estimated total commercial production of PCBs in the United States ranged from 610 million to 635 million kilograms (kg). Most of domestic uses of PCBs were Aroclors produced in the U.S. with only 1.4 million kg of PCBs imported. U.S. production peaked in 1970 at 39 million kg.

PCBs mixtures were manufactured in other countries under many different trade names; these include Clophen (Germany), Fenclor (Italy), Kaneclor (Japan), Sovol (former USSR) and Phenoclor (France). Fenchlor DK is a product of interest as it is comprised solely of decachlorinated biphenyl (Congener #209) and was used in investment casting (Erickson, 1997).

The Monsanto Chemical Company produced approximately 99 percent of PCBs used by U.S. industry. Prior to ceasing production, up to 200,000 kgs of PCBs products per year were imported into the U.S. (ATSDR, 2000). Importation of PCBs continued after U.S. production was banned until January 1, 1979. However, U.S. EPA permitted 16 companies that filed exemption petitions to continue to import and use PCBs after the ban on importation.

Between 1957 and 1977, 52 percent of the Aroclors produced consisted of Aroclor 1242 and 13 percent were its replacement, Aroclor 1016 (Table 7). Aroclor 1016 production was started in 1970, as it was believed to be less harmful to the environment than Aroclor 1242 (Erickson, 1997). Although frequently reported in environmental samples, the more chlorinated Aroclors 1248, 1254 and 1260 comprised only 7, 16 and 11 percent of the PCBs mixtures produced. This high frequency of detection of more chlorinated PCBs may be due to the preferential loss of lower chlorinated PCB congeners from the environment.

Table 7-Relative Production of Aroclors in the United States (1957-1977)

PCBs Mixture	Percent of Production
Aroclor 1016	13
Aroclor 1221	1
Aroclor 1232	<1
Aroclor 1242	52
Aroclor 1248	7
Aroclor 1254	16
Aroclor 1260	11
Aroclor 1262	1
Aroclor 1268	<1

(U.S. EPA, 1996)

Use

PCBs mixtures were most commonly used as dielectric fluid in electrical equipment such as transformers and capacitors (EIP, 1997). PCBs uses can be divided into three different categories: completely closed systems (electrical equipment such as capacitors and transformers), nominally closed systems (e.g., vacuum pumps and hydraulic transfer systems), and open-ended applications (e.g., paints, adhesives, pesticide extenders, inks, and plasticizers). In addition, PCBs had a vast number of other uses, through their inclusion as components in products such as building materials (paints, caulks and sealants), greases, oils, carbonless copy paper, and as ballast in fluorescent lights (Table 8). For example, PCB-containing paints and building sealants were used extensively at Department of Defense (DOD) and Department of Energy (DOE) facilities (U.S. Navy, 2006a; Poland et al., 2001). PCBs have also been detected in up to half the paints and sealants of buildings constructed between 1950 and 1980 in Switzerland (Kohler et al., 2005), Sweden (Astebro et al., 2000), and Australia (CFEMU no date). Based on the results of these studies, PCBs removal programs from building materials have been implemented in these countries. PCBs have been used and are still in use in non-liquid forms in building materials (U.S. EPA, 1999a), including as aquatic paints in fish hatcheries (WDEC, 2006; Cornwall, 2005). However, the extent of PCB-containing materials use in Bay area buildings, as well as the potential of these materials to be released and transported to the Bay, has not been determined.

Prior to 1974, PCBs were used in both closed and open-ended applications. After 1974, open-ended uses of PCBs mixtures were discontinued. One exception was the use of PCBs 209 (decachlorobiphenyl) as filler for investment casting waxes. About 200 tons of PCBs were imported from France and Italy for this use in 1974. The production of PCBs-containing capacitors and transformers ended in January 1979. The life expectancy of transformers and

capacitors is decades. In-place capacitors and transformers may still remain significant potential sources of PCBs to the environment. U.S. EPA maintains a database of current volumes of PCBs used in the United States. The database only contains uses that have been reported voluntarily. A query of this U.S. EPA database showed significant ongoing use, almost 200,000 kg, in the San Francisco Bay Area (Table 3).

PCBs industrial use and manufacture has created on-land and in-Bay contaminated area in the San Francisco region. Remediation and control of PCBs releases from these sites may be necessary to restore the Bay's beneficial uses. In addition, the role of widespread open-ended PCBs uses needs to be addressed to ensure that the implementation actions are successful.

Table 8-Selected List of PCBs Uses

Category	Use
Electrical Uses	Transformers and Capacitors
	Voltage Regulator (power lines)
	Starting Aid (single phase motors)
	Power Factor Correction (rectifier, AC induction motor, furnaces)
	Consumer Electrical Items (refrigerators, televisions, washing machines)
	Water Well Pumps
	Lamp Ballast (fluorescent, high intensity discharge)
	Switch Gear
	Manufacturing Machinery (capacitors, transformers, associated switchgear)
	PCB Contaminated Mineral Oils (transformer changeout)
Non-Electrical Uses	Printing Inks and Pastes
	Carbonless Copy Paper
	Pumps
	Hydraulic Fluids
	Heat Transfer Fluids
	Flame Retardant
	Air Compressor Lubricants
	Plasticizer in paints, resins, synthetic rubber, surface coatings, wax, sealants, waterproofing compound, glues and adhesives
	Pesticides (as extenders)
	Cutting Oil (microscope slide oil)
PCB Contaminated Solids	Wiping Rags
	Safety Equipment
	Machinery
	Soil, Gravel, Asphalt, Sediment

(EIP, 1997)

Disposal

U.S. EPA first promulgated rules in 1978 specifying that liquids containing >0.05 percent (500 mg/kg) PCBs could only be disposed of by incineration in specially permitted facilities, and all non-liquid PCBs mixtures >0.05 percent could only be disposed in specially permitted landfills. In 1979, the regulated PCBs content was lowered to 0.005 percent, or 50 mg/kg. Regulations did not apply to disposal of PCBs dielectric fluid in small capacitors (<3 lbs.) commonly found in fluorescent light ballasts due to the impracticality of regulating the one billion ballasts installed in

fluorescent light fixtures throughout the U.S. Disposal and management of PCBs is further regulated under the Resource Conservation and Recovery Act (RCRA). The Clean Water Act (CWA) regulates the discharge of PCBs-laden wastewater into U.S. waters.

4.4 Quantitation

Historically, PCBs have been quantified as Aroclor mixtures by comparing environmental samples to pure unweathered Aroclor standards. This method's ability to correctly quantify PCBs has been questioned (U.S. EPA, 1996), due to the changes (weathering) Aroclor mixtures undergo in the environment. Analytical methods are now being used to quantify individual PCB congeners (Erickson, 1997). These new methods for quantifying PCB congeners in soils and tissue matrices are performed on a relatively routine basis. Low-level analysis of PCB congeners in water at detection limits that allow comparison to U.S. EPA criterion are still non-routine, can have poor precision, and are relatively expensive.

U.S. EPA established the PCBs water quality criterion for the protection of aquatic life based on the sum of Aroclors, and for the protection of human health based on total PCBs, e.g., the sum of all congeners, or isomers or homologs or Aroclor analyses (U.S. EPA, 2000b). In order to utilize all readily available data, in this report we define total PCBs as any of the following:

- Sum of Aroclors;
- Sum of the individual congeners routinely quantified by the Regional Monitoring Program (RMP) or a similar congener sum; or
- Sum of the National Oceanic and Atmospheric Administration (NOAA) 18 congeners converted to total Aroclors (NOAA, 1993). A comparison of the sum of 18 NOAA congeners converted to Aroclor with quantified sums of Aroclors shows relatively good correlation (Figure 4) in one study.

This is a broad designation of total PCBs that can introduce data comparability issues. However, for the purpose of estimating PCBs loads, sources and reservoirs, the introduced error will likely be small compared to the range of PCBs concentrations found in the Bay. PCBs concentrations in Bay sediments commonly vary by three to four orders of magnitude: Bay ambient sediments have about 4.6 micrograms per kilogram (µg/kg) PCBs, while areas considered contaminated can have PCBs concentrations ranging from 1,000-10,000 µg/kg and up. In addition, PCBs concentrations in sources, reservoirs and biota vary by several orders of magnitude in the Bay. Therefore, the use of data, obtained by different methodologies, is justifiable for the purpose of this report. Where possible, water PCBs concentrations were quantified using similar analytical methods, permitting better data comparability.

All data collected for the development of this TMDL are congener based. We recommend that ongoing PCBs data collection activities in the Bay analyze for a suite of congeners. Specifically, Regional Board staff promotes the analysis of a congener list comparable to that quantified by the RMP to facilitate data comparability for long-term trend analysis. Typically, PCBs are measured as Aroclors using U.S. EPA method 8082 or U.S. EPA method 608 for wastewater. These are routine, relatively inexpensive, methods employed by most laboratories. However, the reporting limits for sediments (about 20 µg/kg) and water (about 0.5 µg/L) with these methods are significantly greater than current ambient concentrations in the Bay and discharged wastewater. In the last few years, more laboratories have started using U.S. EPA method 1668 for the analysis of PCBs in sediment and water. Using this method, reporting limits achieved for

sediment (50 ng/kg) and water (100 pg/L) have environmental significance. Therefore we use method 1668 for the monitoring of ambient conditions in San Francisco Bay.

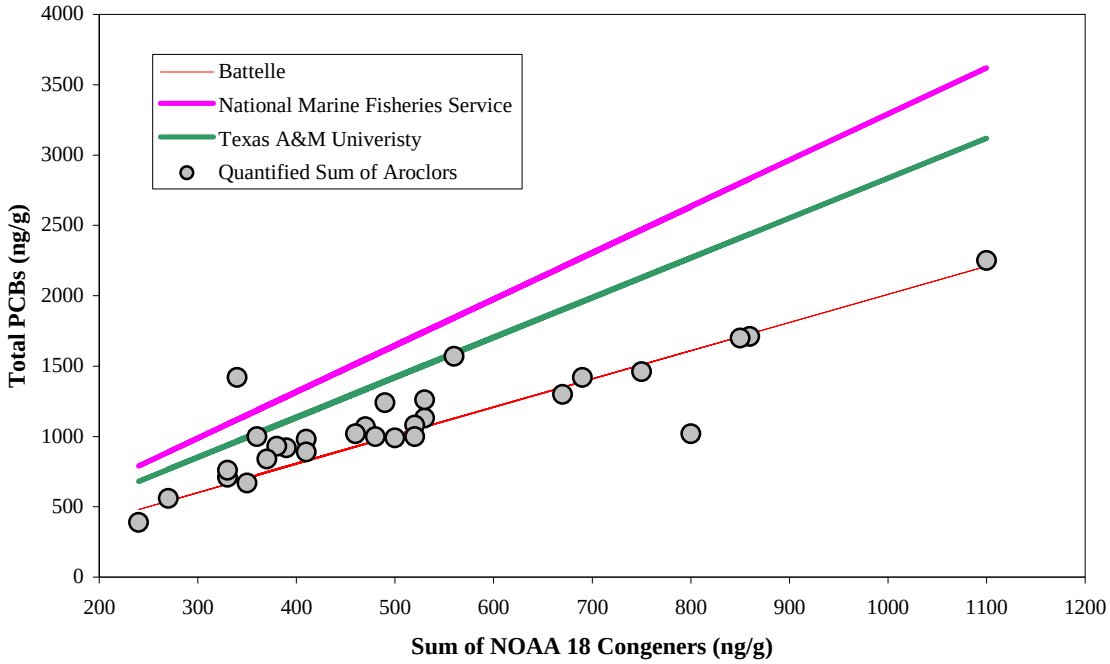

Figure 4-Correlation of PCBs Quantified as Aroclors and Aroclors Calculated from Congener Data (data from SFPUC, 2002)
Regression Line Represents each Organizations Respective Methodology for Quantifying Total Aroclors from Congener Data.

5. Applicable Water Quality Standards

Section 303(d) of the Clean Water Act requires the State of California to identify waters not meeting water quality standards. Water quality standards consist of three parts: beneficial uses, water quality objectives, and antidegradation.

> **Designated or Beneficial Use** - A specific desired use appropriate to the waterbody, termed a *designated use* (beneficial use in California). A beneficial use describes the goal of the water quality standard. It is stated in a written, qualitative form, but the description is as specific as possible.
>
> **Water Quality Criterion or Objective** - A *criterion* that can be measured to establish whether the designated use is being achieved (objective in California). A water quality criterion or objective represents the condition of the waterbody that supports a designated use. The designated or beneficial use is a description of a desired endpoint for the waterbody, and the criterion or objective is a measurable or narrative indicator that is a surrogate for determining attainment of the beneficial use.
>
> **Antidegradation Policy** - An antidegradation policy (under both Federal and California regulations) ensuring that water quality will be maintained at a level protecting beneficial uses.

The beneficial use impaired by PCBs in the Bay is described as follows:

> **Ocean, commercial, and sport fishing (COMM)**
> *Uses of water for commercial or recreational collection of fish, shellfish, or other organisms in oceans, bays, and estuaries, including, but not limited to, uses involving organisms intended for human consumption or bait purposes.*

The applicable water quality objectives include the narrative objective for bioaccumulative substances in San Francisco Bay. This narrative objective states: “Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.” This narrative water quality objective is applicable to both total PCBs and dioxin-like PCBs.

Two applicable numeric water quality standards for total PCBs are promulgated at 40 Code of Federal Regulation Section 131.38, also known as the California Toxics Rule (CTR). These standards include the saltwater criterion continuous concentration (CCC) of 30 nanograms per liter (ng/L) for the protection of aquatic life and its uses from chronic toxicity, and the human health criterion of 170 picograms per liter (pg/L) for the protection from consumption of aquatic organisms. These criteria apply to total PCBs, defined as the sum of all Aroclors, or all congeners or homologs or isomers, and were derived to protect against adverse effects due to PCBs in water. PCBs concentration in the Bay waters are generally below the CCC water quality standard, indicating that current conditions are protective of aquatic life from chronic toxicity. We therefore propose to use the more protective human health criterion as the applicable water quality standard for the PCBs TMDL. This criterion was derived to protect the general population from an increased risk of no more than one in a million. This criterion was

developed using a bioconcentration factor (BCF) approach with an upper bound potency factor reflective of high risk and persistence. However, in the development of this criterion it is explicitly recognized that it is not as protective of sub-populations that consume greater quantities of fish than the general population, and that subsistence fish consumers may only be protected from an increased risk of one in ten thousand. The CTR does not promulgate a separate numeric water quality criterion for dioxin-like PCBs.

Both the narrative and numeric water quality objectives are intended to protect beneficial uses related to human health (COMM). The narrative water quality objective is also intended to protect wildlife beneficial uses of the Bay, including:

Estuarine habitat (EST)
Uses of water that support estuarine ecosystems, including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds), and the propagation, sustenance, and migration of estuarine organisms.

Preservation of rare and endangered species (RARE)
Uses of waters that support habitats necessary for the survival and successful maintenance of plant and animal species established under state and federal law as rare, threatened or endangered.

Wildlife habitat (WILD)
Uses of water that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

6. Impairment Assessment

All segments of San Francisco Bay were placed on the 303(d) list for PCBs due to an interim health advisory for fish consumption. The advisory was based on elevated PCBs concentrations in fish tissue collected in 1994 that may cause a detrimental human health effect for people consuming fish caught in the Bay. Follow-up studies in 1997 and 2000 confirmed the presence of PCBs in Bay fish tissue at concentrations that may be harmful to fish consumers. As such, the narrative water quality objective for bioaccumulative substances that is protective of these beneficial uses is not attained. This is also deemed impairment of COMM beneficial uses with regards to commercial and sport fishing in the Bay, and of EST, RARE and WILD with regards to bioaccumulation.

Consumption of PCBs-contaminated fish is considered a primary source of human exposure in locations where fish consumption (i.e. sports and subsistence fishing) and PCBs contamination are significant. A related probable exposed population is breast-fed children whose mothers consume PCBs-contaminated fish. The evaluation of the health effects of PCBs mixtures is complicated by their complex congener composition (ATSDR, 2000). There is evidence that PCB-health risks increase with increased chlorination because more highly chlorinated PCBs are retained more efficiently in fatty tissues (U.S. EPA, 1997a). Observed effects in humans have ranged from mild reactions to serious health consequences. However, individual PCB congeners have widely varying potencies for producing a variety of adverse biological effects including hepatotoxicity, developmental toxicity, immunotoxicity, neurotoxicity, and carcinogenicity.

PCBs mixtures have been classified as probable human carcinogens (U.S. EPA, 1997a). This is based on studies that have found liver tumors in rats exposed to Aroclors 1260, 1254, 1242, and 1016. Evaluation of the animal data indicates that PCBs with 54 percent chlorine content induces a higher yield of liver tumors in rats than other PCBs mixtures (ATSDR, 2000).

The CTR numerical criterion was derived for the protection of human health from the consumption of aquatic organisms, and as such exceedances of this criterion result in the impairment of the COMM beneficial uses. However, evidence that wildlife may be affected by PCBs exists as bird egg PCBs concentrations that have been measured at levels near the effects threshold (Schwarzbach et al., 2001).

The following sections present the data used to evaluate PCBs impairment of beneficial uses of the Bay. A review of readily available PCBs concentration data for benthic organisms and fish tissue is included, as well as water column PCBs concentrations.

6.1 Benthic Organisms

Several agencies use bivalves to measure the presence of bioaccumulative substances in the water column (NOAA, 1993; Stephenson et al., 1995). Because bivalves integrate water column concentrations of bioaccumulative substances over time, they are useful in identifying geographical areas needing further investigation.

The California Department of Fish and Game (CDFG) initiated the California Mussel Watch Program to measure bioaccumulation in bivalves placed at specific locations throughout the Bay. The long-term bivalve data shows a significant decrease of PCBs concentration in mussels deployed off Point Pinole and Treasure Island between 1977 and 1992 (Stephenson et al., 1995). The bivalve deployment program was continued and expanded by the RMP. RMP data

indicate a continued decrease in PCBs concentration in bivalves placed near Yerba Buena Island from 1980 to 1996 (Gunther et al., 1999).

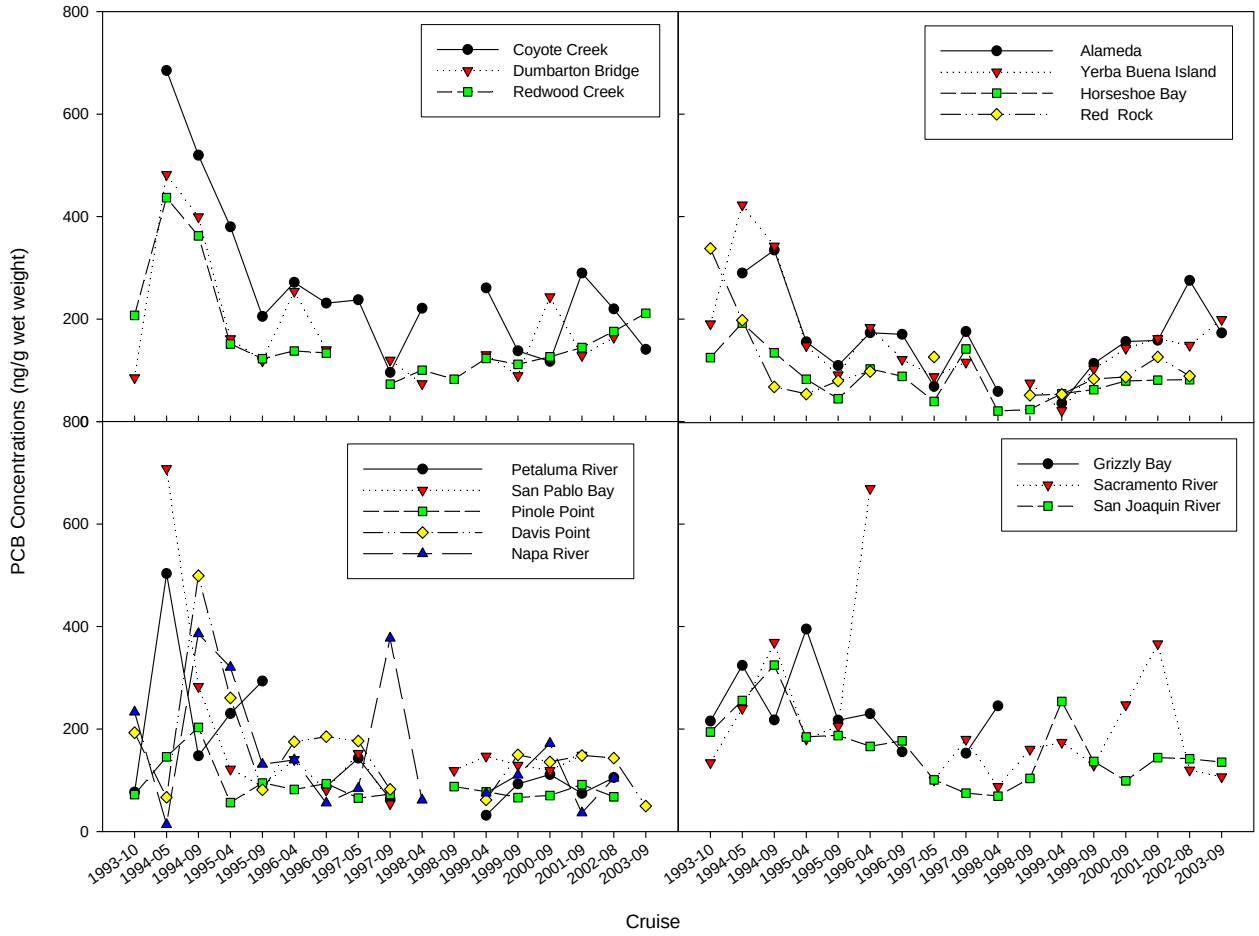

Figure 5-PCBs in Bivalves Deployed in San Francisco Bay (1993-2003)

(http://www.swrcb.ca.gov/programs/smw/index.html and http://www.sfei.org)

Over time, the frequency of deployed bivalves with tissue PCBs concentration less than the screening level of 70 nanograms per gram (ng/g) dry-weight (SFEI, 2000a) has increased (Figure 5), indicating potential improvement of the Bay relative to PCBs. Interpretation of bivalve data is limited, however, due to changing analytical procedures over time.

PCBs tissue concentrations of intertidal benthic organisms have been measured at concentrations up to 700 ng/g wet weight (PRC, 1996) near Hunter's Point Shipyard. Unfortunately, this study combined all species collected within an area and did not measure PCBs concentrations in collocated sediments. Note, however, that the maximum tissue concentration is much greater than the currently used level of concerns for fish tissue and for deployed bivalves. In a subsequent investigation at Hunter's Point Shipyard, PCBs concentrations up to 13,000 ng/g dry weight were measured in polychaete worm tissue collected in the South Basin (U.S. Navy, 2005). The biota were collected at a known PCBs-

contaminated sites in the Bay where sediment PCBs concentrations are several orders of magnitude greater than those in ambient sediments.

PCBs concentrations seem to be declining over time in deployed bivalves, but are still measured at concentrations causing concern. Other benthic organisms, collected at contaminated sites, are often orders of magnitude greater than the screening level, and could be significant sources of PCBs to fish in the Bay.

6.2 Fish Tissue Studies

In 1994, fish were collected throughout the Bay and analyzed for a suite of contaminants including PCBs (SF RWQCB, 1995). All fish species collected in the 1994 study had tissue PCBs concentrations exceeding the calculated screening level of 3 ng/g wet weight (SF RWQCB, 1995). Based on these PCBs concentrations, as well as elevated concentrations of other contaminants, measured in this fish study, the Office of Environmental Health Hazard Assessment (OEHHA) issued an interim fish consumption advisory for all of San Francisco Bay (OEHHA, 1994). The OEHHA advisory is listed as interim because more information is needed about PCBs (and other contaminants) concentrations in fish in San Francisco Bay and fish PCBs concentrations that are protective of human health. Note that nationwide, there are 873 advisory listings for PCBs in surface water (U.S. EPA, 2005). OEHHA is currently reviewing this interim health advisory (OEHHA, 1999). This review includes consideration of newly collected Bay fish PCBs concentration data (SFEI, 1999a; Greenfield et al., 2003; Davis et al., 2006). OEHHA will also be considering survey results of San Francisco Bay sport fish consumers and their level of fish consumption (SFEI, 2000a).

In 1997 and 2000, the RMP collected and analyzed Bay fish for contaminant concentrations (Greenfield et al., 2003; SFEI, 1999b, Davis et al., 2006). As part of these studies, the screening level for fish tissue PCBs concentration was recalculated based on an updated cancer slope factor of 2 (U.S. EPA, 1997a); the resulting screening level was 23 ng/g wet-weight (SF RWQCB, 1995). We recalculated this screening level using local fish consumption habits (SFEI, 2000a). We used a 95th percentile upper bound estimate of the local consumption rate for fish-consuming anglers of 32 grams fish per day rather than a consumption rate for the general population of the Bay area which would be smaller. This conservative estimate constitutes, in effect, a margin of safety for the TMDL, implicitly recognizing the long-term goal of increasing the viability of fish consumption and commercial harvest from the Bay. The screening level is calculated as follows:

$$SVc = \left[\left(RL / CSF\right) * BW\right] / CR \qquad \textit{(Equation 1)}$$

where,

SVc = Screening value for a carcinogen in mg/kg
RL = Maximum acceptable risk level, 10^{-5} or one in 100,000
CSF = Oral cancer slope factor, upper bound estimate is 2 $(mg/kg\text{-}day)^{-1}$
BW = Mean body weight of the population (70 kg)
CR = Fish consumption rate by all consumers based on a four-week recall, 32 g/day

The calculated screening level is 10 ng/g wet-weight. This screening level applies directly to the attainment of the COMM beneficial uses. As will be discussed in Section 9.1, this screening level is equivalent to a sediment PCBs concentration of 1 ng/g. The screening level is therefore

also be protective of the EST, RARE, and WILD beneficial uses as U.S. EPA (1997b) calculated a screening level for the protection of wildlife of 160 ng/g PCBs in sediment. Using the same method and assumptions, a dioxin toxic equivalent (TEQ) screening level of 0.14 pg/g dioxin is calculated for PCBs with dioxin-like properties.

Fish tissue PCBs concentrations in all white croaker and shiner perch exceeded the screening level by an order of magnitude in the four years for which data were collected (Figure 6). Three other fish species had a high frequency of screening level exceedances: sturgeon, jacksmelt and striped bass. Two other species' contaminant concentrations had a low frequency of screening level exceedances: halibut and leopard shark. In shiner surfperch and white croaker, PCBs tissue concentrations are noticeably more elevated than in the other fish species, in large part due to the higher lipid content of these fish (SFEI, 1999b).

Regional differences in fish tissue PCBs concentrations are noticeable, especially in the 1997 data. In the 1997 data, elevated fish tissue PCBs concentrations are noticeable in the Oakland inner harbor for the three fish species shown in Figure 7: jacksmelt, surfperch and white croaker. This is not unexpected as several contaminated sites are located in the Oakland inner harbor (Batelle, 1988; BPTCP, 1998). In 2000, elevated PCBs concentrations are also noticeable for surfperch in the Oakland inner harbor as well as in San Leandro Bay, another area known to have elevated sediment PCBs concentrations (Daum et al., 2000). Elevated fish tissue concentrations in certain locations may reflect a localized diet of benthic organisms residing in contaminated sediments.

PCBs concentrations in white croaker tissue collected in the Oakland Inner Harbor showed a seasonal trend (Figure 8) with higher concentrations in summer and fall and lower concentrations in winter and spring (Greenfield et al., 2003). The trend was correlated with lipid content of the white croaker, and a relation of PCBs concentrations with reproductive activity has been hypothesized (Greenfield et al., 2003). Based on these results, we consider that relying on white croaker PCBs data collected in summer is adequate for long-term trend monitoring as it reflects the season with the higher PCBs concentrations in fish. This seasonal trend will need to be verified for other fish species of concern.

Long-term trends indicate that PCBs tissue concentrations have decreased in shiner surfperch since 1965 (Risebrough, 1995). Unfortunately, data limitations make it difficult to resolve more recent trends of fish tissue PCBs concentrations. For white sturgeon, there does not appear to be a decrease in PCBs concentrations over the last 20 years (Greenfield et al., 2003).

A possible approach for estimating the risk from environmental exposure to PCBs is to use the toxic equivalency factor (TEF) method (ATSDR, 2000). This approach looks at the potency of PCBs mixtures by comparing the toxicity of a individual dioxin-like PCB congener relative to that of 2,3,7,8-tetrachlorodibenzop-dioxin (2,3,7,8-TCDD), the most toxic and studied of the dioxins. Toxicity is calculated as the ratio of the individual PCB congener to that of 2,3,7,8 TCDD that is given a toxicity of 1 (Ahlborg et al., 1994). The contribution of each congener to dioxin-like toxicity (Table 9) is calculated by multiplying their environmental concentrations by its toxic equivalent factor (TEF) and summing to get a dioxin toxic equivalent (TEQ).

A fish tissue screening value for TEQ of 0.14 pg/g was calculated using the same methodology as that for total PCBs. That is, we used the same equation with the same values for risk level, body weight, and fish consumption rates. However, we used a cancer slope factor of 156,000, specific to dioxin-like PCBs (U.S. EPA, 2000d). In some cases, the TEQ was calculated using

only three PCB congeners, numbers 77, 126 and 169. However the TEQ from these three congeners usually comprises more than 80 percent of the TEQ from all PCB congeners with dioxin like toxicity. The screening value is exceeded in shiner surfperch, striped bass and white croaker (Figure 9).

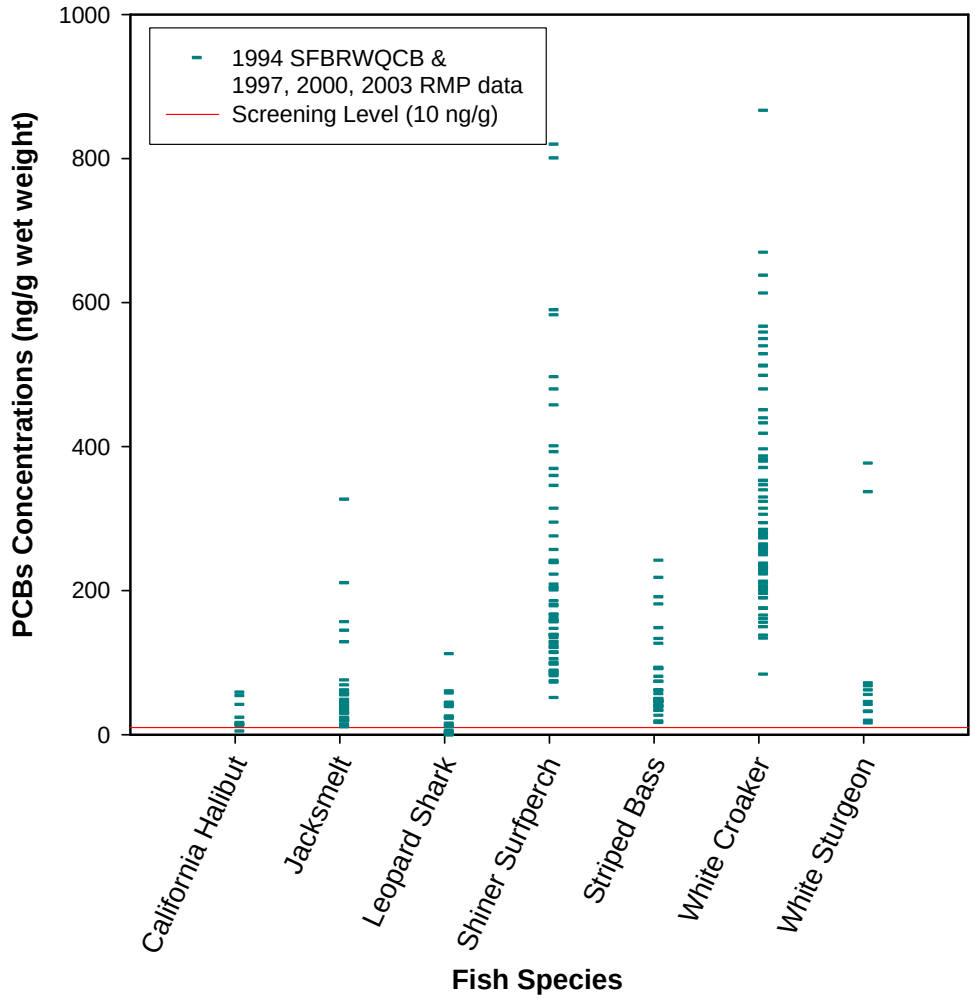

Figure 6-PCBs Concentrations in San Francisco Bay Fish. (Source www.sfei.org)

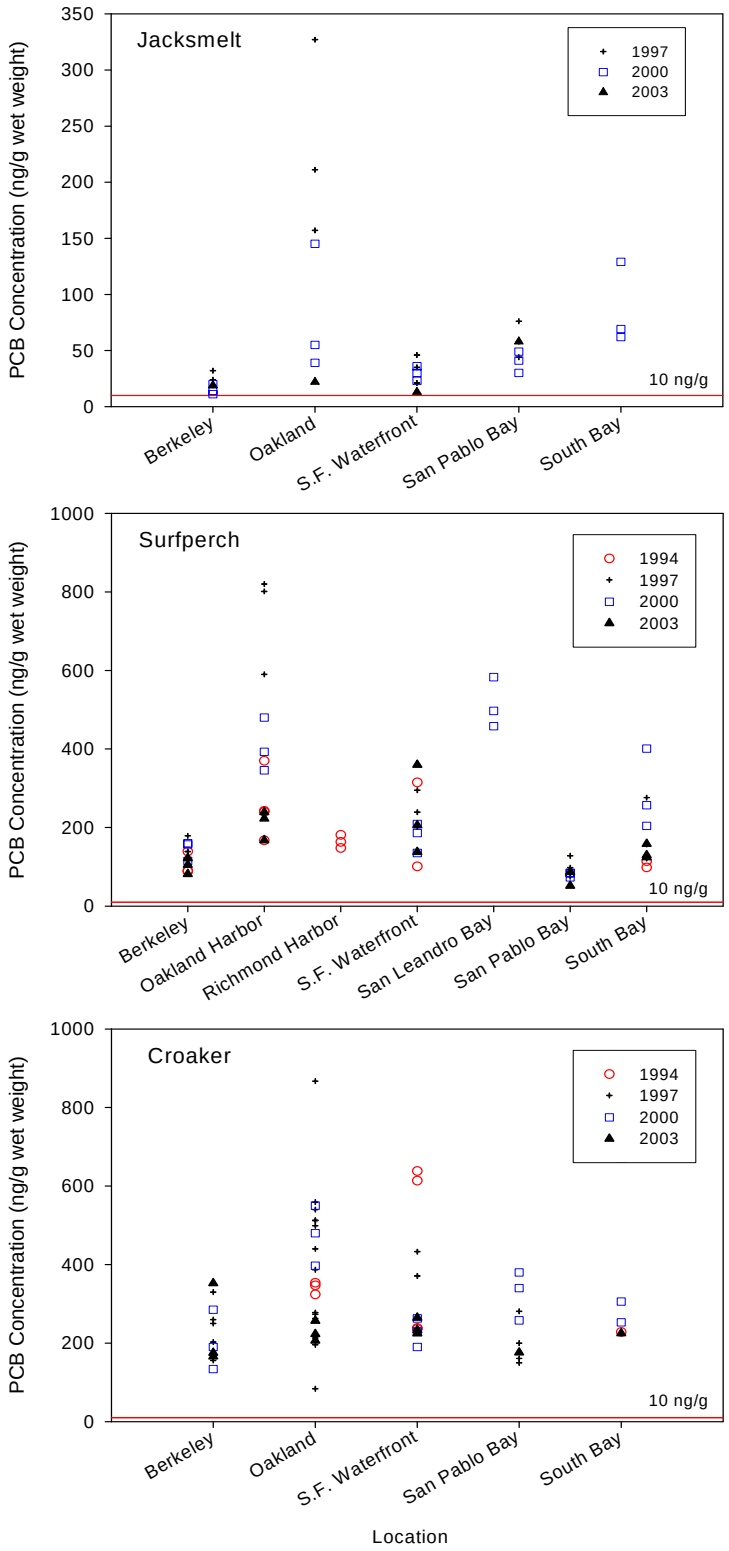

Figure 7-PCBs Concentrations in Selected San Francisco Bay Fish Tissues (1994, 1997, 2000 and 2003). Screening Level is 10 ng/g Wet weight. (Source www.sfei.org)

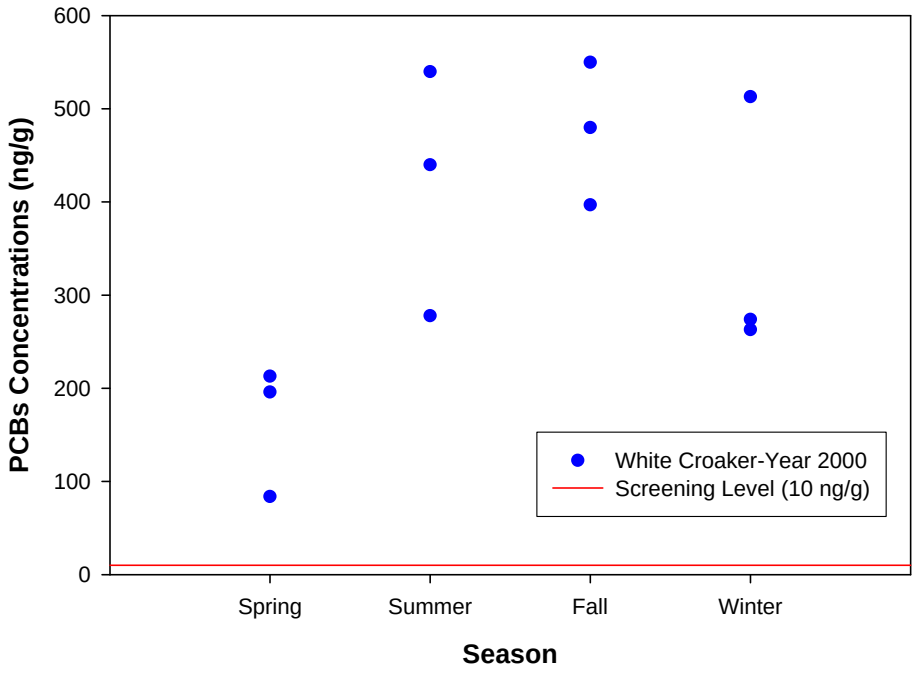

Figure 8-Seasonal Variation of PCBs Concentrations in White Croaker Adapted from Greenfield et al. (2005)

Table 9-PCB Dioxin Toxic Equivalent Factors (Van den Berg, 1998)

IUPAC	NAME	TEF
PCB-77	3,3',4,4'-Tetrachlorobiphenyl	**0.0001**
PCB-81	3,4,4',5-Tetrachlorobiphenyl	**0.0001**
PCB-105	2,3,3',4,4'-Pentachlorobiphenyl	**0.0001**
PCB-114	2,3,4,4',5-Pentachlorobiphenyl	**0.0005**
PCB-118	2,3',4,4',5-Pentachlorobiphenyl	**0.0001**
PCB-123	2,3',4,4',5'-Pentachlorobiphenyl	**0.0001**
PCB-126	3,3',4,4',5-Pentachlorobiphenyl	**0.1**
PCB-156	2,3,3',4,4',5-Hexachlorobiphenyl	**0.0005**
PCB-157	2,3,3',4,4',5'-Hexachlorobiphenyl	**0.0005**
PCB-167	2,3',4,4',5,5'-Hexachlorobiphenyl	**0.00001**
PCB-169	3,3',4,4',5,5'-Hexachlorobiphenyl	**0.01**
PCB-170	2,2',3,3',4,4',5-Heptachlorobiphenyl	**0.0001**
PCB-180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	**0.00001**
PCB-189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	**0.0001**

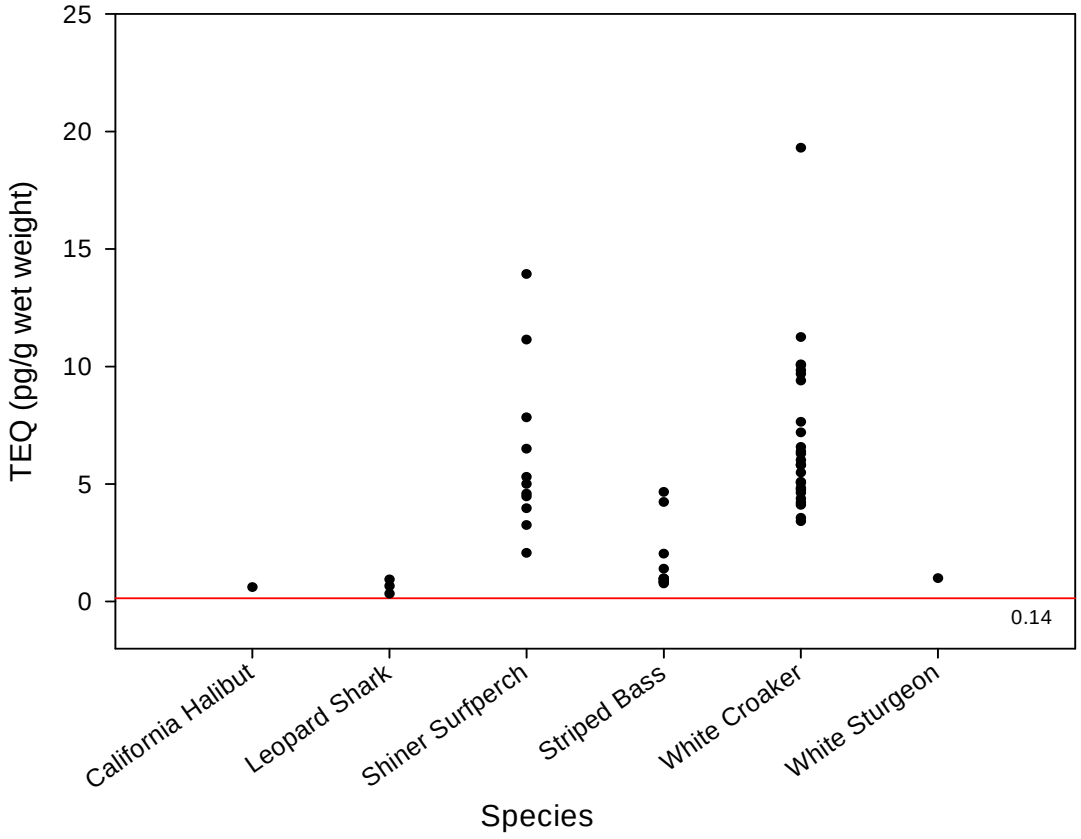

Figure 9- PCB Dioxin Toxic Equivalent (pg/g) in Selected San Francisco Bay Fish (1994, 1997, 2000) (source www.sfei.org)

6.3 Aqueous PCBs concentrations

As previously discussed, U.S. EPA has promulgated a water quality criterion for total PCBs of 170 pg/L (U.S. EPA, 2000b). Over a nine-year period of monitoring at San Francisco Bay monitoring stations (Figure 10), the PCBs water quality criterion was almost always exceeded (Figure 11; Figure 12). In the South Bay and the mouth of the Petaluma River, the water quality criterion was exceeded in 100 percent of the samples. Samples from all other in-Bay RMP sampling locations exceeded the criterion nearly 100 percent of the time. There are no apparent increasing or decreasing trends in water column PCBs concentrations over this time period, so the Bay can be considered at steady state with respect to PCBs concentrations.

The San Joaquin and Sacramento River monitoring stations did not exceed the criterion as often than those in-Bay locations. The criterion was exceeded fewer than 50 percent of the time at only one monitoring station: the Golden Gate located outside the Bay. Elevated in-Bay water column PCBs concentrations can therefore be attributed to Bay Area sources, whether from ongoing discharge of PCBs to the Bay or remobilization of PCBs already in Bay sediments.

There is a high frequency of water column exceedances of the PCBs water quality criterion. Yet, as was discussed in sections 6.1 and 6.2, benthic organisms and fish have elevated PCBs in

areas where sediments also have elevated PCBs concentrations. In order to lower the fish tissue PCBs concentrations to the screening level, the TMDL focuses on PCBs in sediments.

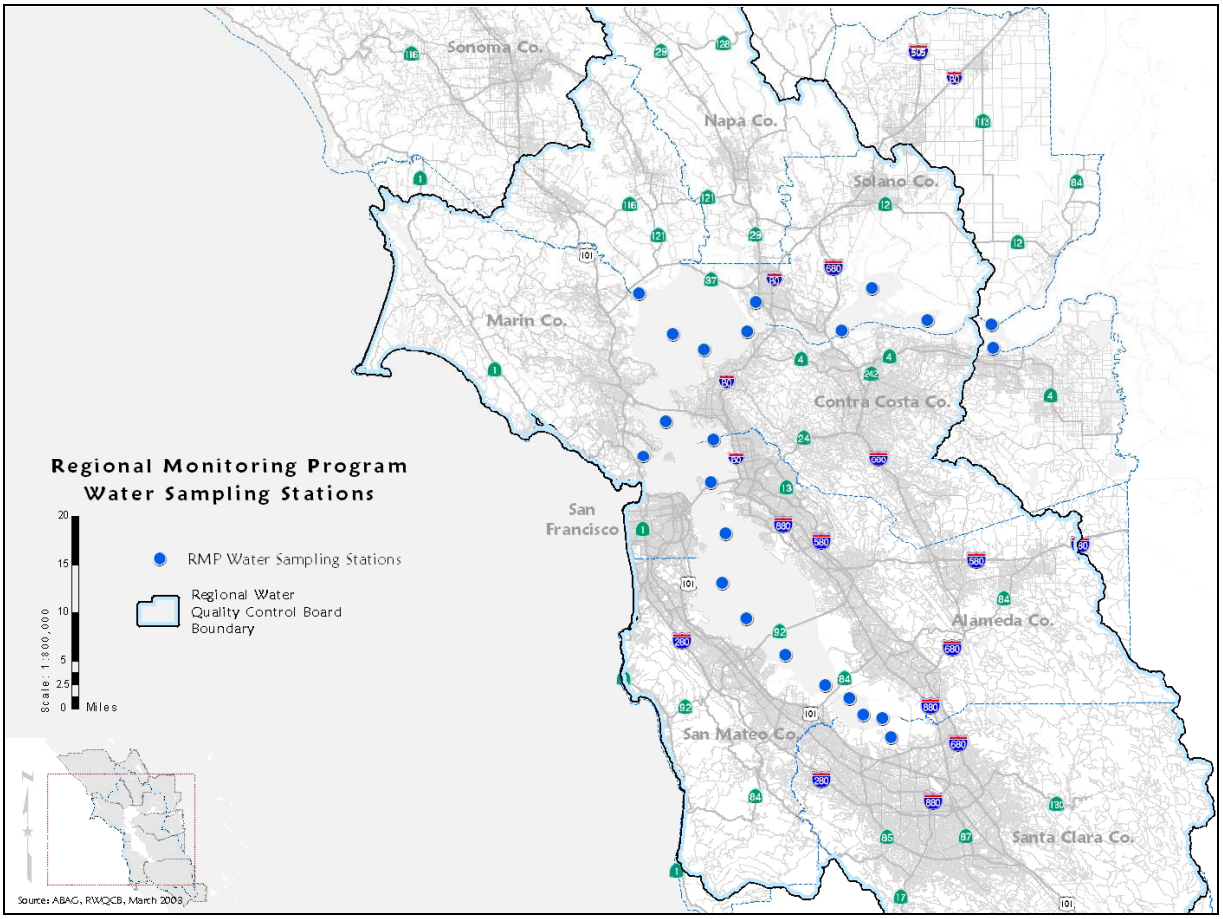

Figure 10-Regional Monitoring Program Sampling Stations (1993-2001)

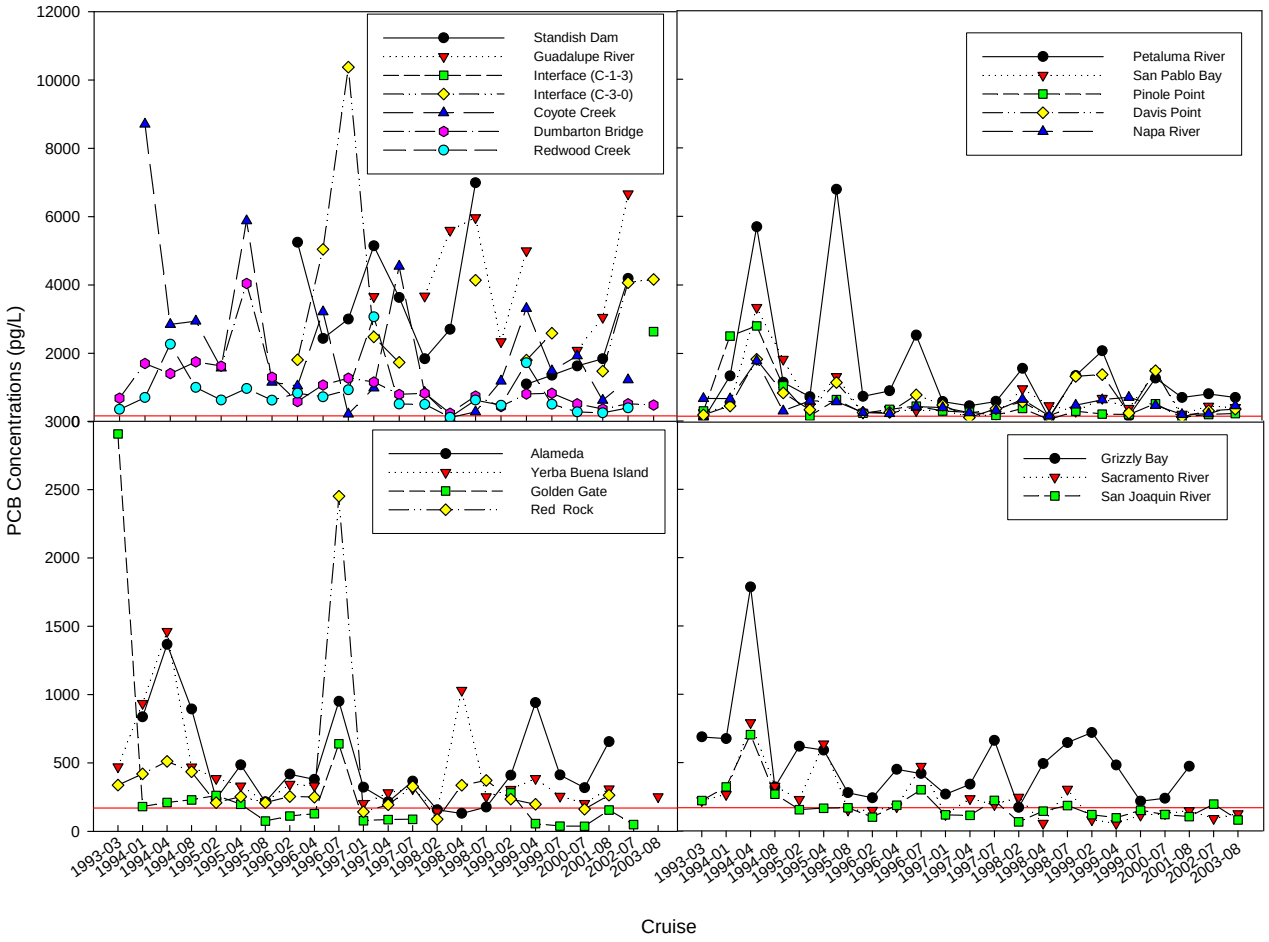

Figure 11-Water Column PCBs Concentrations in San Francisco Bay Fixed Stations (1993-2003)

Red line is the applicable water quality standard of 170 pg/L (based on data from http://www.sfei.org)

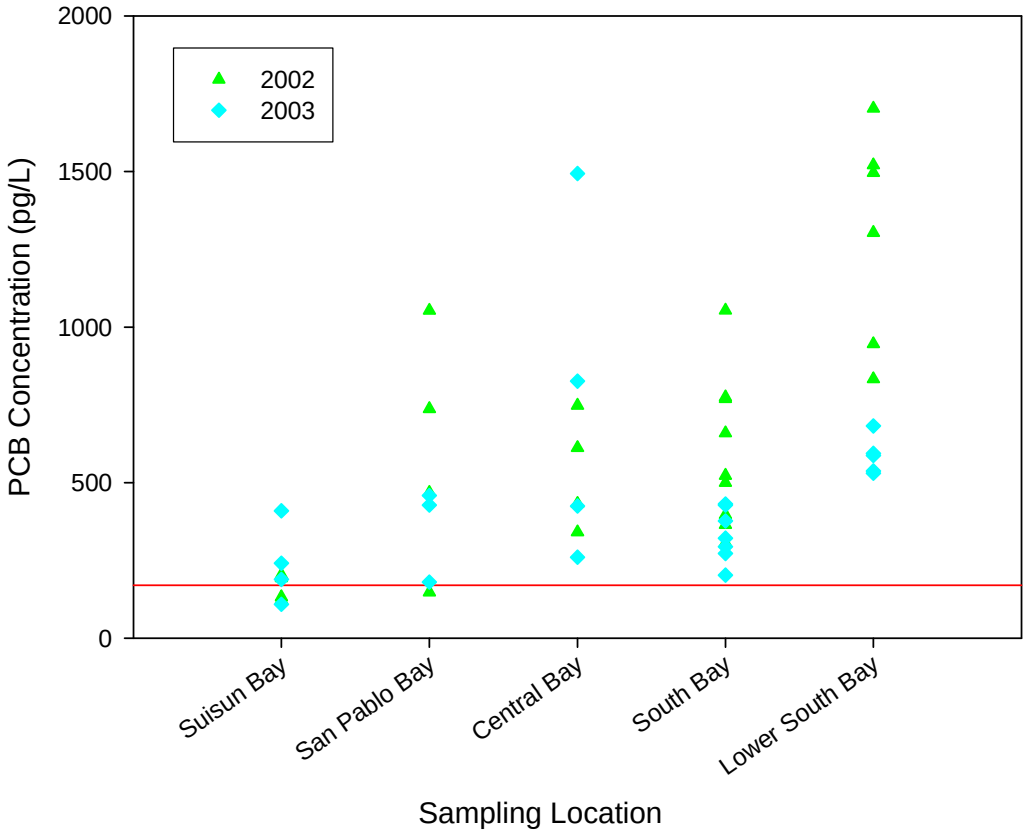

Figure 12-Water Column PCBs Concentrations in San Francisco Bay-Random Design
Red line is the applicable water quality objective of 170 pg/L.

7. Reservoirs, Sources and Loads, and Movement of PCBs

Since the onset of production in 1929, PCBs have been introduced to the environment through land disposal (legal and illegal), accidental spills and leaks, incineration of PCBs or other organic materials in the presence of chlorine, pesticide applications, surface coatings such as paints and caulks, and wastewater discharge. Diffusion of PCBs from localized areas with high PCBs concentrations has resulted in widespread low-level background concentrations across the globe (Erickson, 1997).

In the following sections, we present our understanding of PCBs distribution in the Bay, along with estimates of sources and loads. We have assessed current PCBs mass in the water column and sediments, as well as the loads from direct atmospheric deposition, Central Valley watershed inputs, municipal and industrial wastewaters, and stormwater runoff to the Bay. We also present our understanding of in-Bay PCB-contaminated sites, but can not estimate their role as sources to the water column and biota.

7.1 Environmental Reservoirs

Due to potentially large historical releases of PCBs to the Bay, an estimate of PCBs reservoirs is needed to put current PCBs loads in perspective. Two environmental reservoirs of PCBs exist in the Bay: the water column and the sediments. As discussed below, the mass of PCBs in sediments is much greater than in the water column. However, it is important to note that a numeric criterion exists for water but not for sediments. This is important since the potential for sediments to be resuspended and supply PCBs to the water column is significant, as well as the ability for sediment to supply PCBs directly to biota.

Water Column

SFEI (2007) calculated a Bay-wide PCBs concentration of 430 pg/L from RMP data collected between 2002 and 2006. Based on this water column concentration and a water volume of 5,500 million m^3 for the Bay, they estimate a PCBs mass of 2.4 kg in the water column (SFEI, 2007).

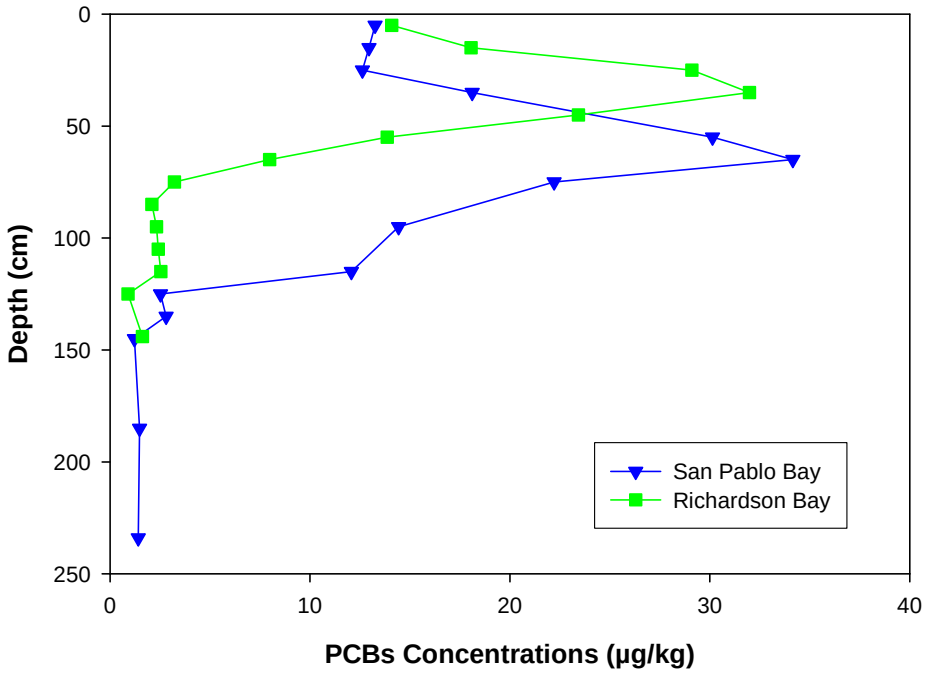

Figure 13-PCBs Concentrations with Depth in Sediments from Two North Bay Locations (USGS, 1999)

Sediments

For the purposes of this report, we separated Bay sediments into two categories: ambient and contaminated. Sediments considered ambient are from locations distant from known sources of contamination and have PCBs concentrations that cannot be statistically differentiated from other sediments collected in similar environments. Sediments considered representative of contamination are usually located near-shore, close to potential sources of contamination and have concentrations often several orders of magnitude greater than ambient sediments.

In 1992, the United States Geological Survey (USGS) collected ambient sediment cores in Richardson Bay and San Pablo Bay (Fuller et al., 1999). Radioisotopes were used to determine deposition chronologies of the sediments, which were compared to the chemical concentrations as a function of depth. PCBs concentrations were relatively constant to a depth of 25 to 50 centimeters (cm), corresponding to deposition since the early 1980s. A sharp increase in PCBs concentrations was observed below those depths, with maximum concentrations corresponding to deposition in the 1970s (Figure 13).

Total masses of PCBs per unit area for the entire depth of the cores were calculated to be 1,400 nanograms per square centimeter (ng/cm^2) and 4,100 ng/cm^2 for Richardson Bay and San Pablo Bay respectively (Venkatesan et al., 1999). Extrapolating the core results to the entire Bay, we estimate based on an estimated surface area of 1,285 km^2 that the total PCBs mass in ambient sediments ranges from 18,000 to 52,000 kg (Table 10). This range is based on the results from sediment cores collected far from known on-land PCBs use areas, and may under-represent total PCBs in the Bay. Yet, sediments represent a PCBs reservoir four to five orders of magnitude larger than the 2.4 kg in the water column.

Table 10-Estimated Total PCBs Mass in Bay Sediments Based on USGS Core Data

Location	Depth (m)	Total PCBs (ng/cm2)	Total PCBs in Estuary (kg)
Richardson Bay	0.75	1,391	18,000
San Pablo Bay	1.25	4,069	52,000

Alternatively, the total mass of PCBs in ambient sediments can be estimated using the mean concentration of PCBs in sediments of 4.6 μg/kg (SFEI, 2007). Again using an area of 1,285 km^2 for the Bay and a depth of 1 meter to cover the depth to which PCBs are usually found. Assuming that Bay sediments are 55 percent solid by weight (range from 40 to 80%), we can estimate total PCBs in sediments. Sediment volumes are converted to sediment dry mass as follows:

$$M_s = \frac{(x\rho_w)}{\left[1 + x\left(\rho_w / \rho_s - 1\right)\right]} V_t \qquad \textit{(Equation 2)}$$

where,

M_s = the dry mass of sediments in kg,
x = the percent solid per unit mass sediment,
ρ_w = the density of water (1kg/L),
ρ_s = the particle density of sediments (2.65 kg/L for aluminosilicates),
and V_t = the volume of sediments.

The dry mass of sediment is then converted to PCBs mass for a range of sediment PCBs concentrations. This gives an estimate of 4,300 kg of total PCBs in ambient sediments of the Bay (Table 11), which is lower than the results based on the USGS cores (Table 10).

There are specific in-Bay locations where sediment PCBs concentrations are much higher than in the rest of the Bay (BPTCP, 1998) that we refer to as PCBs-contaminated sites. Data were collected at these sites (Table 12, Figure 14) to satisfy different regulatory requirements, and are therefore not readily comparable. For example, sampling densities and methods often vary between regulatory programs. Several of the sites (e.g. Cerrito Creek) were identified under the Bay Protection and Toxic Clean-up Program (BPTCP) and the sampling consists of one or a few surface grab samples. The Vallejo Ferry terminal site was identified during sampling and analysis for a dredging project and corresponds to one composite sample collected from several deep cores. Hunters Point Shipyard and Seaplane Lagoon at the Alameda Naval Air Station are Superfund sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). They have a much higher sampling density than most other sediment sites in the Bay. Other sites were investigated as part of scientific studies, such as in San Leandro Bay, or remedial investigations of on-land contaminated sites, such as the Emeryville crescent. At the Oyster Point site, remedial actions have already been undertaken. Regardless of the differences in methodology used for collecting these data, the listed sites

have sediment PCBs concentrations several orders of magnitude greater than those considered ambient. These highly elevated PCBs concentrations could be contributing significant PCBs mass to the Bay's biota. PCBs concentrations in sediment dwelling biota can be correlated to PCBs concentrations in sediments (Figure 15). Potential contribution of PCBs to biota from these contaminated sediments needs to be further evaluated, and likely needs to be reduced to lower the fish tissue PCBs concentrations.

Table 11-Estimated Total PCBs Mass in Bay Sediments Based on Ambient PCBs Concentrations

Sediment PCB Concentrations (µg/kg)	SurfaceArea (km^2)	Depth (m)	Total PCBs (kg)
4.6	1,285	1	4,300
11	1,285	1	12,000
22	1,285	1	24,000
35	1,285	1	38,000

Table 12-PCBs-Contaminated Sites in the Bay

Bay Segment	Location	Maximum Sediment PCBs concentrations (µg/kg)	References
Suisun Bay	Peyton Slough	>200	BPTCP (1998)
San Pablo Bay	Vallejo Ferry Terminal	>1,000	MEC (1996), Regional Board File No.2128.03
Central Bay	Richmond Harbor/Potrero Point	>10,000	Hart Crowser (1993), BPTCP (1998), Battelle (1994)
	Stege Marsh	>1,000,000	BPTCP (1998), PERL(1999), URS (2000a), URS (2002a)
	Richardson Bay	>200	EDAW (1997); ABT (1998)
	Cerrito Creek	>200	BPTCP (1998)
	Cordonices Creek	>200	BPTCP (1998)
	Emeryville Crescent	>1,000	TetraTech (1993)
	Oakland Army Base	>1,000	Arcadis (2004)
	Oakland Harbor	>200	Battelle (1988), BPTCP (1998), EVS et al. (1998)
	San Leandro Bay	>1,000	BPTCP (1998), Daum et al., (2000), Regional board File No. 2199.9018A
	Alameda Naval Air Station Seaplane Lagoon	>1,000	BPTCP (1998), US Navy (1999), Battelle et al. (2001) Battelle 2005)
	Islais Creek	>200	BPTCP (1998), SFPUC (2002)
	Mission Creek	>200	BPTCP (1998), SFPUC (2002)
	Yosemite Creek Hunters Point Shipyard	>10,000	BPTCP (1998), SFPUC (2002), PRC (1996) Navy (2004), Battelle et al. (2004)
	Oyster Point	>1,000	MEC (1990), Treadwell and Rollo (1995), URS (2000b)
	San Francisco Airport	>1,000	BPTCP (1998), URS (1999)
South Bay	Redwood City Harbor	>1,000	MEC (1997), ABT (1997)
Lower South Bay	Moffett Federal Airfield NASA Ames	>10,000	PRC and Montgomery Watson (1997)
	Guadalupe Slough San Jose	>200	ESA (1988)

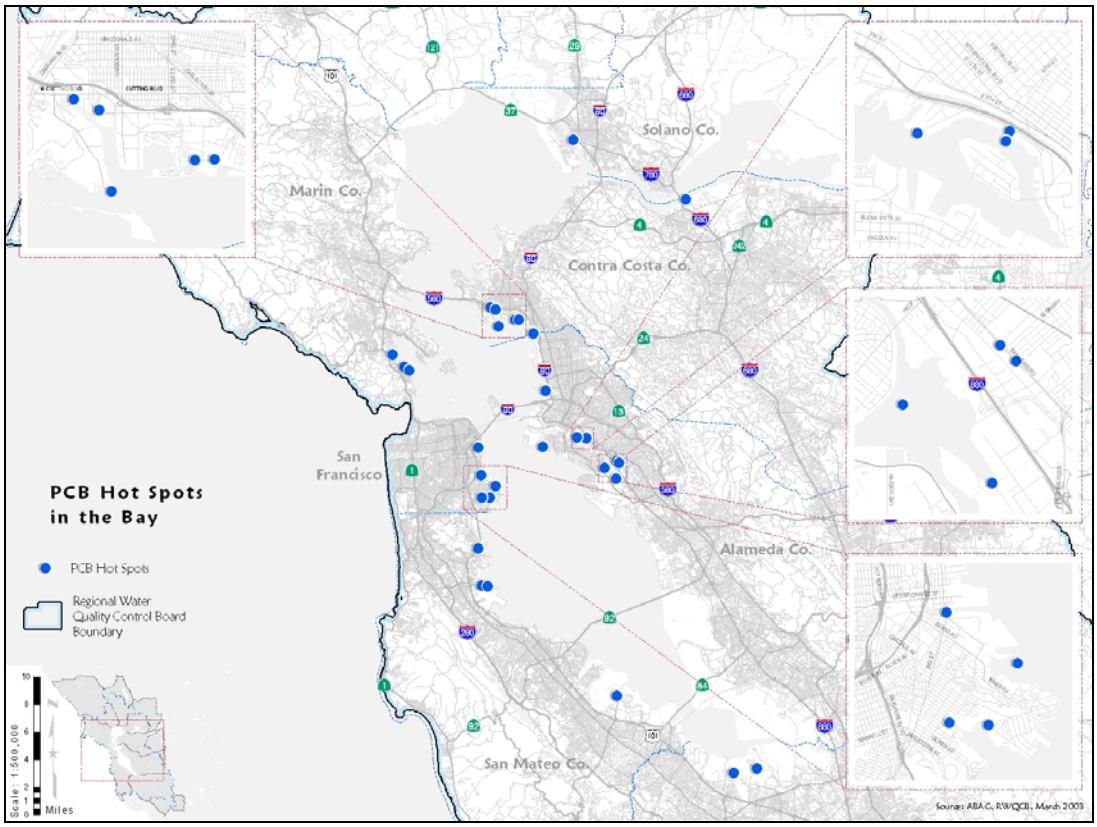

Figure 14-PCBs-Contaminated Sites in the Bay

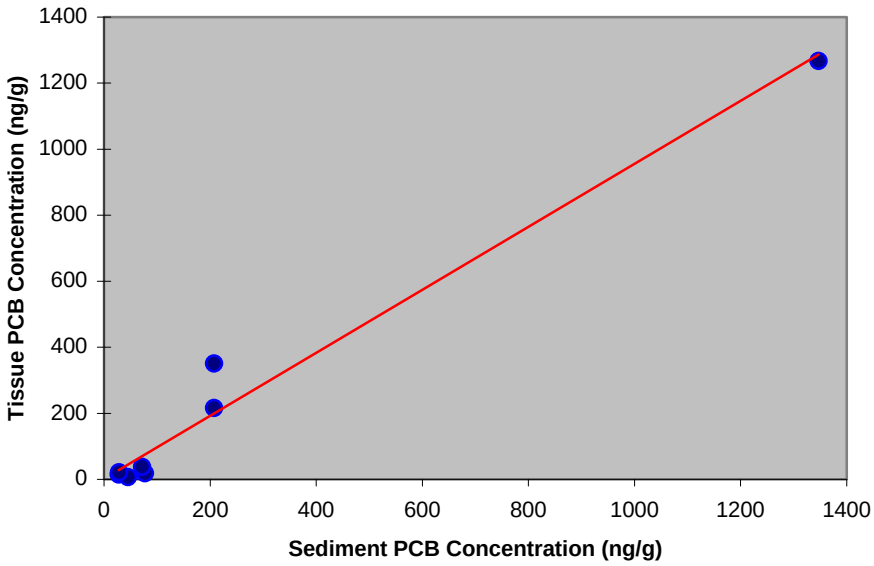

Figure 15-PCBs Concentrations in Sediment and Bent-Nosed Clam (Macoma nasuta) Tissue Following Bioaccumulation Testing, Seaplane Lagoon, Alameda NAS

7.2 External Sources

As previously discussed, sediments are the largest PCBs reservoir in the Bay and may contribute significant PCBs mass to biota. However, these sediments correspond to only one pathway of PCBs loadings to the Bay. As part of developing this TMDL, all known and potential sources and loads of PCBs to the Bay must be considered. In this section, we present our current understanding of sources and estimates of the loads from the following sources:

- Direct atmospheric deposition
- Central Valley watershed (Sacramento and San Joaquin Rivers)
- Municipal and industrial wastewater discharges
- Runoff and local tributaries

Direct Atmospheric Deposition

PCBs have been detected in remote regions of the world, far from known areas of PCBs use, indicating that atmospheric movement and deposition of PCBs can be significant sources of PCBs to surface waters (Erickson, 1997). Conversely, PCBs can also be lost from surface waters to the atmosphere by volatilization. In some instances, loss of PCBs to the atmosphere can account for the largest removal of PCBs from surface water (Jeremiason et al., 1994).

Deposition of PCBs from the atmosphere occurs either directly to surface waters, or indirectly in the watershed. PCBs deposited in the watershed may then be transported to the Bay via stormwater runoff discharges. The San Francisco Estuary Institute (SFEI) has completed a study of the direct deposition of PCBs to the Bay from the atmosphere (SFEI, 2005; Tsai et al., 2002). Indirect contributions of PCBs to the Bay from the atmosphere were not quantified, but are included in the loadings estimates for urban and non-urban stormwater runoff. Direct PCBs loads to the Bay are estimated to be 0.5 kg/yr (SFEI, 2007), but loss to the atmosphere is estimated at 7.4 kg/yr resulting in a net loss (Table 13). However, PCBs loss from the Bay to the atmosphere is accounted for in the mass budget model and is quantified in the prediction of attainment of the target.

Table 13-Estimated PCBs Mass Associated with Dredge Material Disposal (2001-2005)

Disposal Site	Total Volume 2001-2005 (cu yd)	Average Volume (cu yd/yr)	Average Annual Estimated PCB Mass (kg/yr)
In-Bay Disposal	8,900,000	1,800,000	4.6
Ocean (SF-DODS) Disposal	3,800,000	760,000	-2.0
Upland/Wetland Reuse	8,100,000	1,600,000	-4.1
Net Loss			-6.1

These load estimates are small compared to load estimates for water bodies elsewhere in the United States and may need to be revised. However, it is very likely that loads to the Bay currently are, and have always been, much lower than loads to eastern United States water bodies due to regional wind patterns that typically come from the ocean pushing locally generated airborne PCBs inland and the fact that there have been historically lower uses of PCBs in the Bay area. Finally, it is recognized that water-atmosphere transfers have greatly declined over the last three decades.

Central Valley Watershed

PCBs concentrations in the Sacramento and San Joaquin rivers have been monitored by the RMP for over ten years. Based on the concentrations measured by the RMP, we had previously estimated that about 40 kg of PCBs entered the Bay each year from the Central Valley. More recently, PCBs loads entering the Bay from the Central Valley have been estimated for the years 2002 and 2003 (Leatherbarrow et al., 2005). Annual loads of PCBs were estimated at 6.0 ± 2.0 and 23 ± 18 kg for years 2002 and 2003, respectively. The load estimates are based on measured flow-weighted mean PCBs concentrations ranging from 200 to 6,700 pg/L with a median concentration of 600 pg/L. SFEI calculated annual PCBs mass loadings using Central Valley water discharge data at Mallard Island from the Department of Water Resources (Interagency Ecological Program) using a mass balance approach and the DAYFLOW model (SFEI, 2007). These annual load estimates may be at the lower end of the range of annual loads as these years were drier years with lower sediment inflow from the Central Valley (Leatherbarrow et al., 2005). For the TMDL, we are using the SFEI derived average load of 11 kg/yr, derived from five years of data, as the loading to the Bay from the Central Valley (SFEI, 2007).

Municipal and Industrial Wastewater Dischargers

There are a number of municipal and industrial wastewater discharges into San Francisco Bay (Figure 16 and Figure 17). Municipal wastewater discharges are located throughout the Bay (Figure 16), while the major industrial wastewater discharges take place in the north Bay segments (Figure 17) where ambient PCBs water concentrations are some of lowest in the Bay.

Municipal and industrial wastewater discharges to surface waters are controlled through waste discharge requirements issued as federal National Pollutant Discharge Elimination System (NPDES) permits. Selected municipal wastewater dischargers (Publicly Owned Treatment Works or POTWs) and petroleum refineries have quantified PCBs in their wastewaters using U.S. EPA method 1668 to achieve lower detection limits (SFEI, 2001b; 2002a; 2002b). Wastewaters from the POTWs with secondary treatment have an average PCBs concentration of 3,600 pg/L (Table 14), while wastewaters from POTWs with advanced treatment have an average PCBs concentration of 210 pg/L (Table 15). Wastewaters from petroleum refineries in the North Bay had an average PCBs concentration of 270 pg/L (Table 16), similar to that in the POTWs with advanced treatment, while other industrial wastewater dischargers had an average concentration of 1900 pg/L.

Using average daily flows from the POTWs and industries, including refineries, and the average PCBs concentrations in wastewaters from each category, we estimate that municipal and industrial wastewater discharges annually contribute 2.3 kg and 0.035 kg of PCBs to the Bay respectively.

Urban and non-Urban Stormwater Runoff

Municipal urban stormwater runoff management agencies measured sediment PCBs concentrations within their urban and non-urban stormwater runoff conveyance systems in the summers of 2000 and 2001 (ACCWP, 2001; ACCWP 2002a, ACCWP 2002b; KLI, 2001; KLI, 2002). The purpose of these studies was to determine whether PCBs are evenly distributed and discharged from stormwater conveyance systems or whether PCBs-contaminated sites exist within watersheds. These studies also attempted to evaluate whether runoff conveyances are sources of PCBs in themselves. The studies also examined whether specific locations within watersheds are contributing to ongoing PCBs discharge to the Bay via stormwater conveyance

systems due to historical or current activities at those locations. Finally, loads of PCBs from runoff to the Bay were estimated based on the sediment PCBs concentrations and estimated loadings of sediments to the Bay.

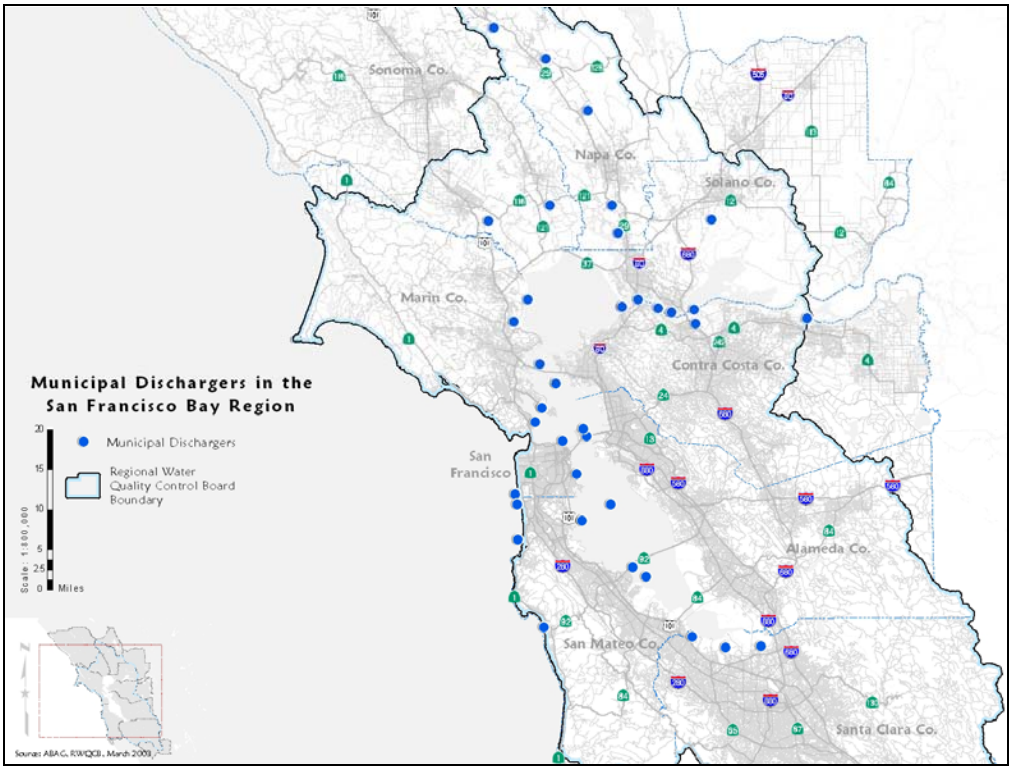

Figure 16-Municipal Wastewater Dischargers in San Francisco Bay

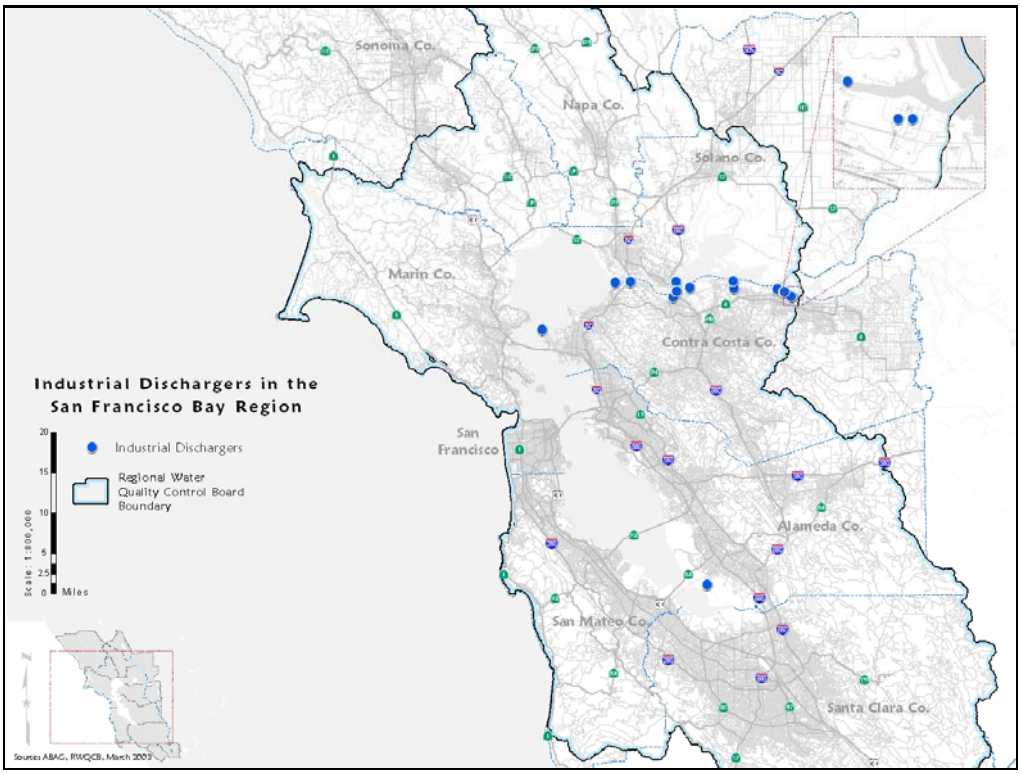

Figure 17-Selected Industrial Wastewater Dischargers in San Francisco Bay

Table 14-PCBs Concentrations in Wastewater from Municipal Dischargers with Secondary Treatment

POTW	PCBs (pg/L)	
	December-00	February-01
East Bay Municipal Utility District	7,900	5,700
Central Costa Costa County Sanitary District	1,100	1,400
East Bay Dischargers Authority	4,700	3,700
City and County of San Francisco	2,200	2,700
Millbrae	NA	2,600

NA = Not Analyzed

(SFEI, 2002a)

Table 15-PCBs Concentrations in Wastewater from Water Municipal Dischargers with Advanced Treatment

POTW	PCBs (pg/L)			
	November-99	February-00	April-00	July-00
Fairfield-Suisun	250	NA	130	NA
Palo Alto	310	310	320	240
San Jose/Santa Clara	190	170	170	190
Sunnyvale	200	190	120	160

(SFEI, 2001b)

Table 16-PCBs Concentrations in Wastewater from Industrial Dischargers

Facility	PCBs (pg/L)
Southern Energy California LLC,	1000
Potrero Power Plant	370
	260
	130
Southern Energy California LLC,	830
Pittsburg Power Plant	72
C&H Sugar Co.	860
	3700
The DOW Chemical Co.	1800
	660
San Francisco, City and Co.,	5600
SF International Airport Industrial WTP	4300
	3400
	3400
Chevron Products Company, Richmond Refinery	650
	570
ConocoPhillips, San Francisco Refinery	170
	380
Shell Oil Products US and Martinez Refining Company,	280
Shell Martinez Refinery	150
Tesoro Refining & Marketing Co, Golden Eagle Refinery	110
	150
Valero Refining Company, Valero Benicia Refinery	170
	85

(SFEI, 2002b)

The urban and non-urban stormwater runoff study found sediment PCBs concentrations ranging from the low µg/kg level to the tens of thousands of µg/kg level. Sediment sampling locations were selected to reflect a variety of land use categories (Figure 18 and Figure 19). Sediment PCBs concentrations were statistically greater in areas of industrial, commercial and residential land use than in open space, clearly showing that PCBs were not evenly distributed across watersheds. Eleven of 209 locations had PCBs concentrations greater than 1,000 µg/kg (Figure 20), while 125 locations had PCBs concentrations greater than in-Bay ambient sediments which have PCBs concentrations of 4.6 µg/kg. Pilot studies of these urban stormwater runoff conveyance systems contaminated sites indicate that only in some cases can the PCBs be traced back to current or historical on-land activities (ACCWP, 2002a, ACCWP, 2002b; CCCWP, 2002; San Jose and EOA, 2002; SMCSTPPP, 2002). Elevated PCBs concentrations in the urban and industrial landscapes were expected due to the widespread use of PCBs both in closed and open applications (Table 8), such as transformers or capacitors that may have leaked hydraulic fluids, lubricants, and plasticizers, as well as its uses in building materials. PCBs in open space land use area were also expected due to the known role of atmospheric transport and deposition of PCBs around the world, as well as the direct application of PCBs to the environment in various processes (Section 4.3), such as pesticide extenders.

At several locations with elevated sediment PCBs concentrations, follow-up case studies were conducted to attempt to locate the source of PCBs to the stormwater conveyance system (CCCWP, 2002; San Jose and EOA, 2002; SMCSPPP, 2003; SMCSPPP, 2004). These case studies were successful on only some occasions to identify a potential source of PCBs to the stormwater conveyance system. In another study (Kleinfelder, 2006), targeted sampling for

PCBs in soils and sediments the public right-of-way was performed within an industrial watershed with elevated PCBs in storm drain sediments. Sampling locations were based on an analysis of current and past business, followed by inspections for compliance with the industrial general NPDES permit under which the business operate. This investigation was able to detect a number of potential sources of PCBs within the watershed at a larger frequency than in a randomly determined sampling scheme performed alongside. This study showed a need to target PCBs source and treatment controls to current and historical industrial watersheds.

PCBs loads for the Guadalupe River have been estimated to be from 0.7 to 1.2 kg/yr between 2003 and 2005 (McKee et al., 2005). SFEI extrapolated these loads to small urban tributaries and estimated a total load of 20 kg/yr (SFEI, 2007). We use this total load estimate for combined urban and non-urban stormwater runoff. The contribution to the total load from non-urban runoff is much smaller than that from urban runoff since the mean sediment concentration in open spaces is about 2 μg/kg, whereas it is about 500 μg/kg in urban spaces (KLI, 2002).

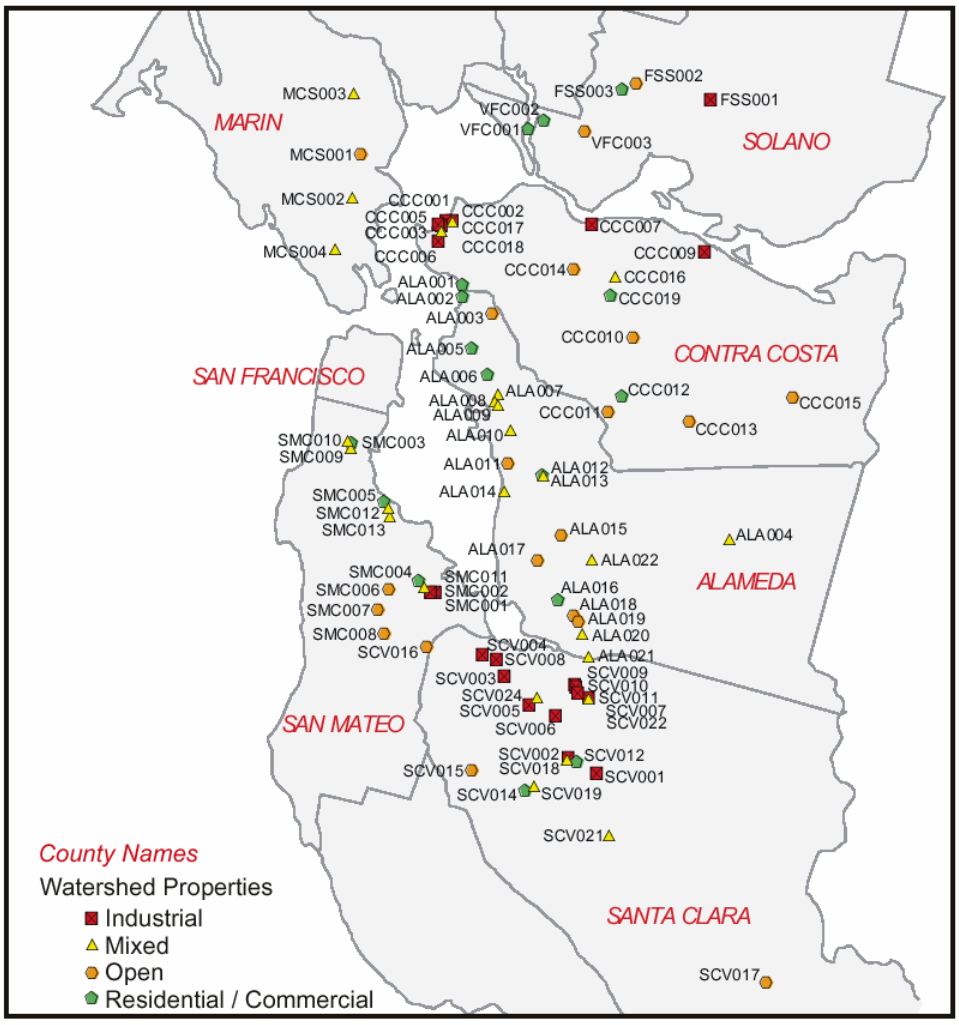

Figure 18-Sediment Sampling Locations in Stormwater Runoff Conveyance Systems (2000) (Source KLI, 2001)

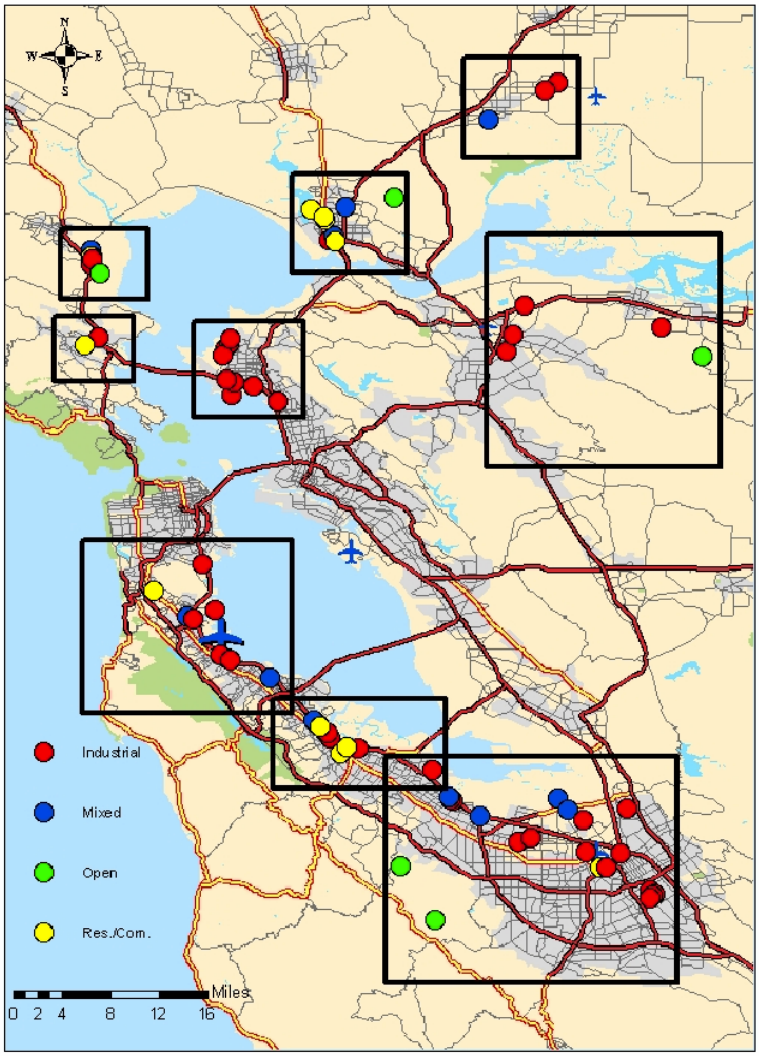

Figure 19-Sediment Sampling Locations in Stormwater Runoff Conveyance Systems (2001) (Source KLI, 2002)

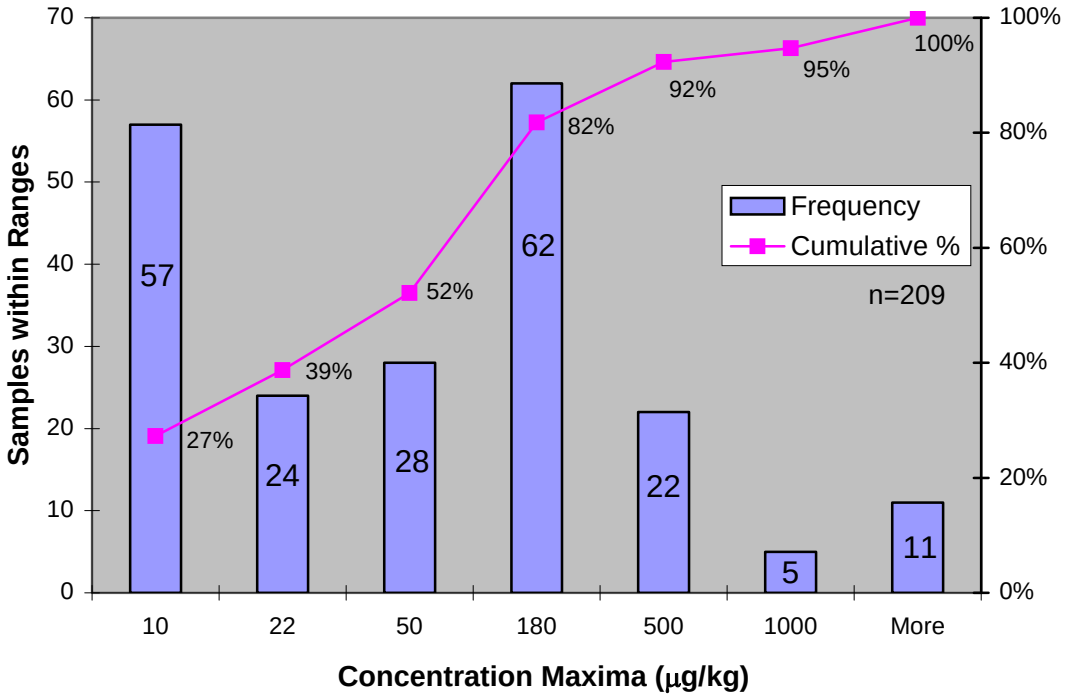

Figure 20-Sediment PCBs Concentrations Distribution in Urban Conveyance Systems (2000-2001)

7.3 Internal Sources

As discussed in Section 7.1, bottom sediments are the largest environmental reservoir of PCBs in the Bay. In general, the water column PCBs mass is mostly associated with suspended sediments. Deposition of suspended sediments and re-suspension of bottom sediments are therefore important processes controlling the mass of PCBs in Bay water. Continual mixing of bottom sediments from wave action or other disturbances, such as mixing by organisms (bioturbation) or erosion of bedded sediments, can provide an ongoing supply of PCBs to the water column and biota. The large mass of PCBs in sediment denotes the importance of sediment dynamics in predicting the fate and distribution of PCBs throughout the Bay. In this section, we look at two processes affecting the bioavailability of sediment-bound PCBs. First, PCBs in the "active" sediment layer are considered because of their potential to be resuspended along with sediment and their potential for uptake by bottom dwelling aquatic organisms (bioavailability). Second, dredging activities are also considered because they can potentially cause previously buried PCBs to become bioavailable.

Active Sediment Layer

A sediment active layer can be defined many different ways based on the biophysical mechanism and reference timeframe of interest. In this report, the active layer is defined as the Bay sediments that are in contact with biota or that can be resuspended into the water column.

In one study, radioisotope dating indicated a mixing depth of about 10 cm on a timeframe of several months in Richardson Bay (Fuller et al., 1999). Biological and physical mixing within the sediment column was further substantiated by burrow worms found to a depth of 12 to 15 cm. In San Pablo Bay, the depth of the active layer was difficult to measure, as sediments at this site are believed to have undergone episodes of rapid deposition and scouring. Worms have also been observed to a depth of one to two feet in the area offshore of Hunter's Point Shipyard (U.S. Navy, 2005).

In this report, we define the active layer as the top 15 cm of sediments in the Bay, in order to be consistent with modeling performed on the long-term fate of PCBs in the Bay. Although there is uncertainty as to the exact depth of the active layer (Davis, 2003), using 15 cm is appropriate to get an order of magnitude estimate of PCBs mass in the active layer because we are interested in the relative masses of PCBs in the various reservoirs and load categories. Using this depth and a mean sediment PCBs concentration of 4.6 µg/kg, we estimate that a PCBs mass of 650 kg resides in the active sediment layer of the Bay, with potentially a maximum between 3,100 and 4,900 kg. This mass is an order of magnitude greater than PCBs sources and loads discussed in Section 7. The large mass of PCBs in the active layer, as compared to the annual loads, is likely to affect recovery of the Bay even after load reductions have been implemented.

Navigational Dredging

Maintenance dredging of Bay sediments is an ongoing activity where sediment is removed from navigation channels and is disposed of at either designated in-Bay locations (Figure 21) or out of the Bay. Between 2001 and 2005, an annual average of 1.8 million cubic yards per year of dredged sediments were disposed of at in-Bay disposal sites (DMMO, 2006) while an average of about 2.4 million cubic yards of dredged sediments were removed annually from the Bay. Using five year annual averages, we can estimate the mass of PCBs disposed of in and out of the Bay. We converted sediment volumes to dry mass using the equation given in Section 7.1. Using mean ambient PCBs concentrations commonly found in the Bay (4.6 µg/kg), we estimate that, each year about 4.6 kg of PCBs are disposed of in the Bay at dredged sediment disposal sites. During the same period, placement of dredged sediment at either upland sites or the deep ocean disposal site removes about 6.1 kg of PCBs per year from the Bay, resulting in a net loss of about 6.1 kg of PCBs each year. However, the large volume of sediment placed upland originates from the 50-foot deepening project by the Port of Oakland. This is a one-time deepening project that does not qualify as maintenance dredging. It is unlikely that this high volume will be maintained after completion of this dredging project. Future upland beneficial reuse and deep ocean disposal will need to obtain sediments from maintenance dredging projects represented mainly by in-Bay disposal volumes. This will result in much smaller volumes taken out of Bay. These are small PCBs masses compared to that in the surface layer (650 kg), but are on the same scale as the loads discussed in Section 7. Furthermore, note that natural processes are believed to annually re-suspend much larger volumes of sediments (Table 2) and could potentially be mobilizing a significantly larger mass of PCBs.

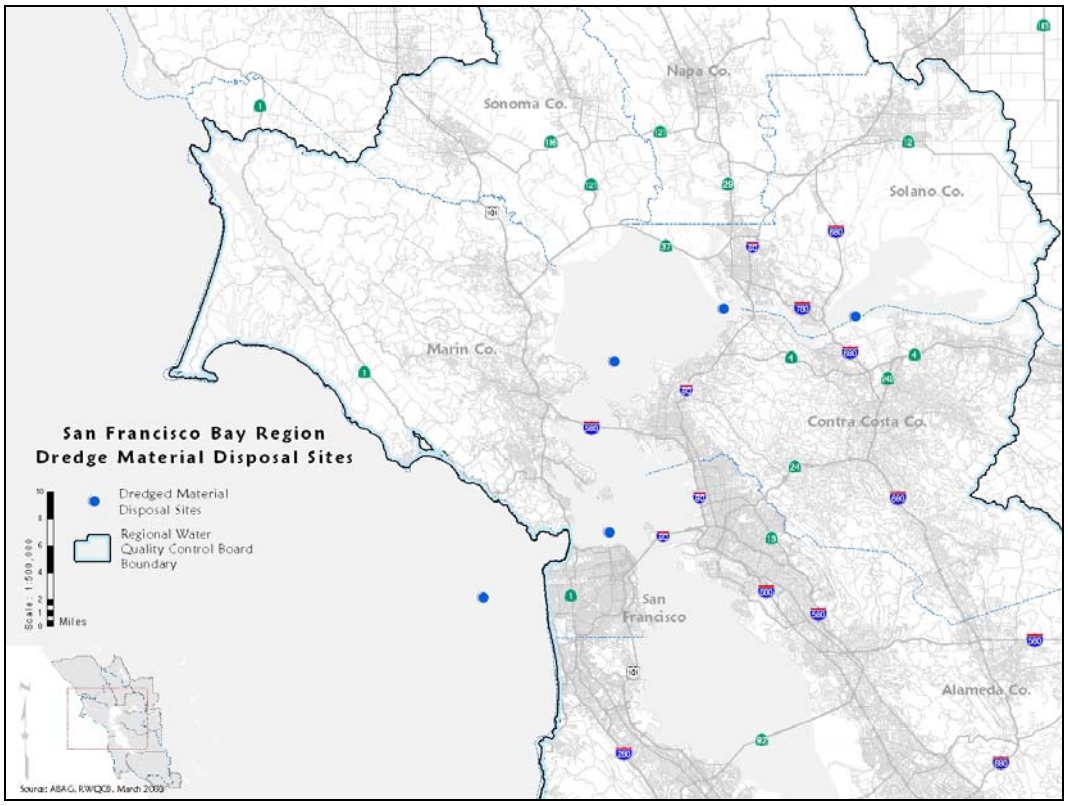

Figure 21-Dredged Sediment Disposal Sites for San Francisco Bay Region

7.4 Summary of PCBs Sources and Loads

Comparing the various load categories, excluding in-Bay sediments, the two major sources of PCBs mass to the Bay come from the Delta and urban stormwater runoff (Figure 22; Table 17) As discussed in Section 7.2, sediments from the Central Valley watershed carry a large mass of PCBs but are lower in concentrations than in-Bay sediments, potentially helping to reduce the current impact of PCBs on the Bay by burying more contaminated sediments. Therefore, implementation of the TMDL should focus primarily on reducing sediment PCBs concentrations by controlling sources in urban stormwater runoff as well as controlling the release of PCBs from contaminated sediments in the Bay.

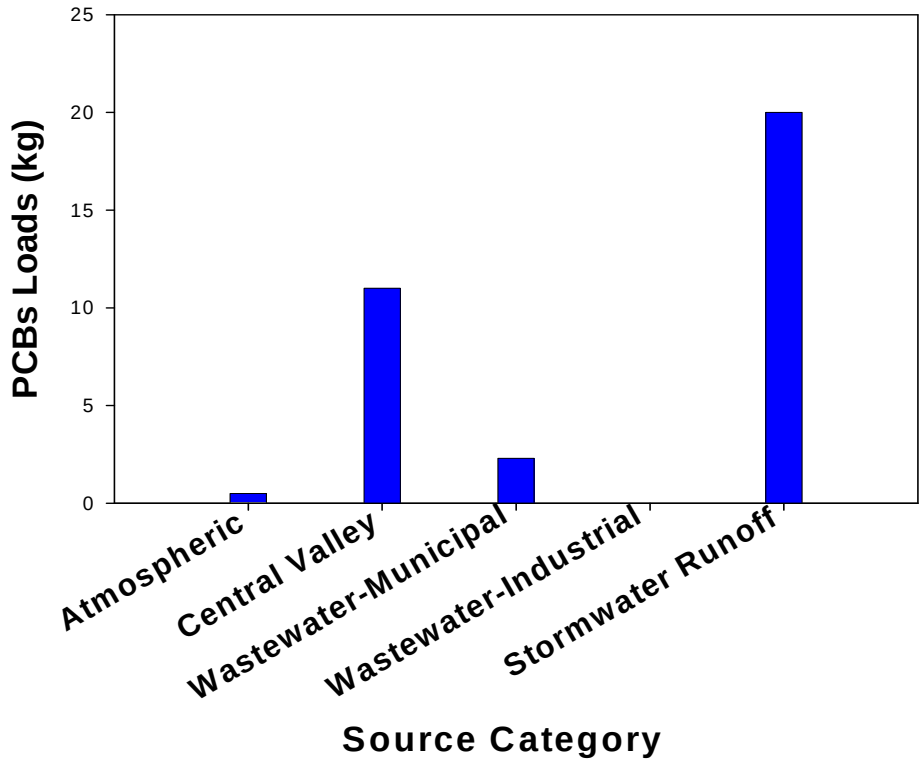

Figure 22-Sources and Loads of PCBs to San Francisco Bay

In summary, PCBs are found mostly in the central and southern portion of the Bay (Figure 23) generally in or near areas associated with historical industrial activities. Therefore, we should focus implementation to these on land areas and the remediation of the nearby in-Bay areas most impacted by PCBs discharges.

Table 17 - Synopsis of PCBs Loads to San Francisco Bay

Source Category	Current PCBs Loads (kg/yr)
Atmospheric	Net Loss
Central Valley Watershed	11
Municipal Wastewater Dischargers	2.3
Industrial Wastewater Dischargers	0.035
Urban and Non-Urban Stormwater Runoff	20

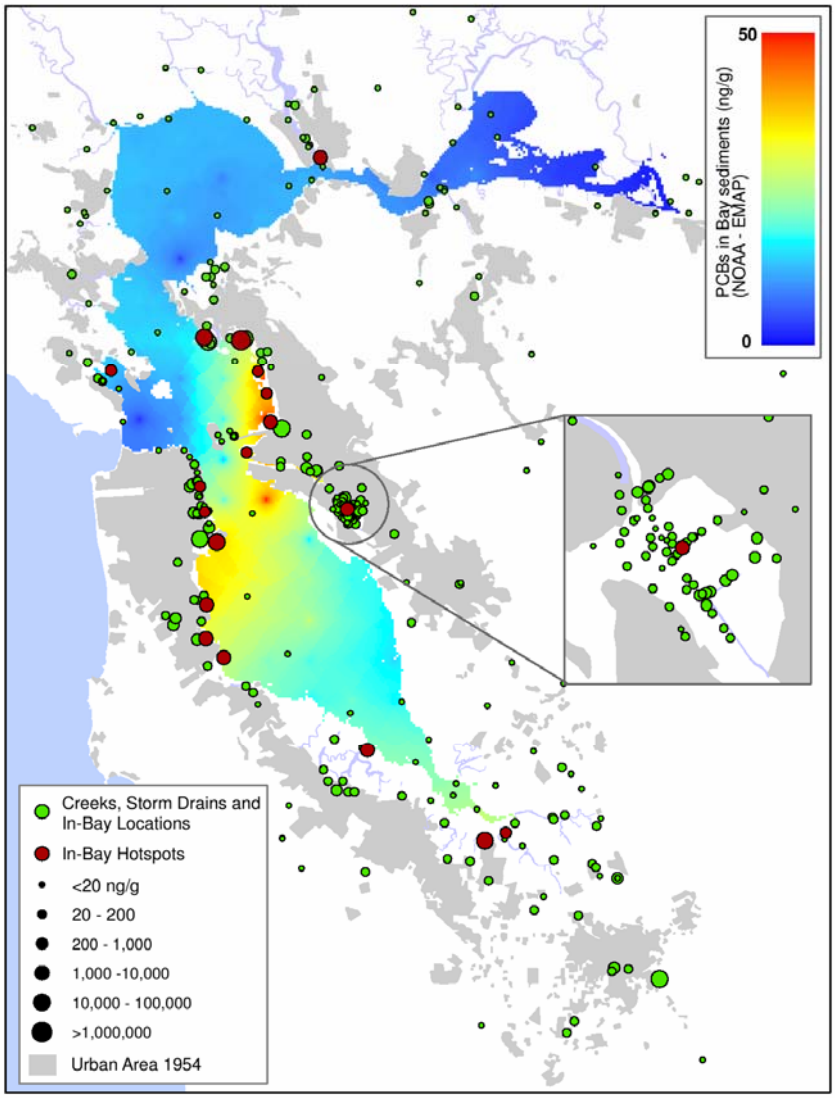

Figure 23-Overview of in-Bay and on-Land Sediment PCBs Concentrations

8. Numeric Target

A numeric target is a measurable condition that demonstrates attainment of water quality standards. A numeric target can be a numeric water quality objective, a numeric interpretation of a narrative objective, or a numeric measure of some other factor necessary to meet water quality standards. In this report, we propose a fish tissue PCBs numeric target.

The fish tissue numeric target provides for the attainment of the desired conditions that support the beneficial uses currently impaired. Fish tissue PCBs concentrations are the direct cause of impairment of beneficial uses. The CTR water quality criterion for PCBs is a surrogate measure of impairment as it is derived for the protection of human health based on the risk from eating fish caught in the Bay. This PCBs TMDL focuses on fish tissue PCBs concentrations, as this is the direct measurement of impairment of commercial (COMM) beneficial uses. We expect lower bioaccumulation will also protect estuarine (EST) and wildlife (RARE, WILD) beneficial uses. Fish tissue PCBs concentrations are currently being monitored as part of the RMP, and therefore progress towards attaining the fish tissue numeric target is directly monitored.

8.1 Fish Tissue Target

As noted above, fish tissue PCBs concentrations are the direct cause of impairment of beneficial uses. Therefore, the proposed numeric target for the PCBs TMDL is a fish tissue PCBs concentration. The proposed fish tissue numeric target for PCBs is based on a calculated screening level developed using standard protocol (U.S. EPA, 2000c). The screening level is defined as concentrations of PCBs in fish above which there are potential health concerns. The screening level for PCBs is calculated using Equation 1 (Section 7.1).

We calculated the screening level for a risk of one extra cancer case for an exposed population of 100,000 over a 70-year lifetime, using a mean body weight of 70 kg, a slope factor of 2 $(mg/kg\text{-}day)^{-1}$, and a mean daily consumption rate of 0.032 kg/day. The consumption rate is the 95^{th} percentile upper bound estimate of fish intake reported by all Bay fish-consuming anglers (SFEI, 2000a). The fish tissue screening level calculated based on these numbers is 10 ng/g. This represents about a ten-fold reduction in fish tissue PCBs concentrations from current levels. This numeric fish tissue target is applicable to fish collected in summer and fall seasons, when fish tissue concentrations are most elevated (Figure 8), in consideration of seasonality.

The screening value protective of Bay sport fish consumer is calculated using the upper 95^{th} percentile consumption rate of all consumers, 32 g/day. All consumers reflect a subpopulation of Bay area residents that catch and consume sport fish which is a subset of the fisher category. The general population includes all Bay area residents, including those that do not catch or consume sport fish. As was discussed earlier about the derivation of the CTR criterion for PCBs, the water column criterion was not derived to protect subpopulations at the same risk level as the general population. We have therefore used a 10^{-5} risk level to derive the fish tissue numeric target of 0.010 mg/kg. This numeric target is also more protective than the 10^{-5} risk level since an upper bound consumption rate, rather than the mean, was used for this subpopulation. The numeric target is protective of those consuming ten times more fish, 320 g/day, at a 10^{-4} risk. This is a greater consumption rate than the maximum reported in the fish consumption study, based on a four-week recall. Finally, it is reasonable to assume that this numeric target is protective, at a 10^{-5} risk level, of the general population as only a small fraction of the overall population catch and consume fish in the Bay. Therefore, this fish tissue numeric target is protective of the general population and the most exposed population of the Bay area and is consistent with the CTR criterion. Attainment of the fish tissue target is consistent with the

narrative bioaccumulation water quality objective in the Basin Plan in that it results in removal of the detrimental effects of elevated PCBs in fish.

Attainment of the fish tissue numeric target is also consistent with the CTR criterion. Bioaccumulation factors (BAFs) are the ratios of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water ($BAF_{water}=C_{tissue}/C_{water}$), where both the organism and its food are exposed and the ratio does not change substantially over time, which seems applicable to the Bay. Once developed, BAFs can be used to either predict future fish tissue concentrations based on water concentrations or inversely water column concentrations using fish tissue concentrations. We have calculated BAFs for PCBs in the entire Bay as well as individual segments of the Bay using RMP fish tissue data collected in 1994, 1997, and 2000, and RMP water column data collected from 1993 through 2001 (Table 18). Using these BAF values, we calculated an expected concentration of PCBs in the water column when the fish tissue numeric target is met. The model calculations predict that the CTR water quality standard will be attained upon attainment of the fish tissue numeric target for PCBs.

The CTR numeric criterion is only a surrogate measure of conditions affecting fish tissue concentration. Site-specific conditions, such as water depth and magnitude of PCBs contamination of sediments, may affect fish tissue PCBs concentrations to a larger extent than water column PCBs concentrations. Measures to attain the PCBs fish tissue numeric target will focus on reductions of pollutant mass loads and contaminated site cleanups, rather than on avoidance of exceedances of concentration-based water quality standards. A decreased input of PCBs into the Bay will result in the reduction of PCBs concentrations in sediments and a decrease in PCBs available for uptake by biota.

Attainment of the fish tissue target for PCBs in San Francisco Bay will be evaluated using white croaker (size class, 20 to 30 centimeters in length) and shiner surfperch (size class, 10 to 15 centimeters in length). These two fish species are selected as the measure of attainment of the target for three reasons. First, these two fish species have the highest PCBs concentrations of all fish monitored in the Bay (Figure 6), which is expected as they are both benthic feeders. Second, they live near shore for at least part of the year and are caught from piers and jetties where recreational fishing is most likely to happen. Finally, the food model predicts that attainment of the fish tissue target for white croaker and shiner surfperch will result in attainment of the target for all other fish species currently monitored in the Bay. Comparison of the numeric target to these fish species constitutes an implicit margin of safety as sport fishers do not limit their fish consumption to these species (SFEI, 2000a) Rather, sport fishers consume a variety of fish species including many with lower PCB concentrations. Attainment of the fish tissue target in these two species ensures attainment of the fish tissue target for all Bay species sport fishers consume, and provides a implicit margin of safety as these other species consumed will have lower PCBs concentration than the fish tissue target.

The Water Board will continue to evaluate attainment of the fish tissue target and require the collection of additional information concerning Bay sport fish patterns of consumption and evaluate if fish species other than white croaker and shiner surfperch should be considered to evaluate attainment of the target. The average PCBs concentrations in the edible portion of these species will be used to determine attainment of the PCBs target following the methods currently in use by the RMP to ensure consistency and data comparability. The number of fish samples collected to determine compliance with the target will be based on guidance described in U.S. EPA's Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories

(EPA 823-B-00-007) and will be based on the desired statistical power needed to demonstrate differences over time.

Attainment of the PCBs fish tissue numeric target is also expected to result in removal of impairment of the Bay by dioxin-like PCBs. In Figure 24 we show the regression of calculated TEQ from dioxin-like PCBs to that of total PCBs in fish tissue caught in the Bay. The regression shows that a decrease of fish tissue PCBs concentrations to the fish tissue numeric target of 10 ng/g will result in a decrease of TEQ to the TEQ screening level of 0.14 pg/g.

Table 18- Bioaccumulation Factors and Estimated Water Column PCBs Concentrations upon Attainment of the Fish Tissue Target for White Croaker

Waterbody	White Croaker		Shiner Surfperch	
	BAF[a]	Water PCBs Concentration (pg/L)	BAF[a]	Water PCBs Concentration (pg/L)
Entire Bay	0.224	49	0.160	69
Central Bay	0.572	19	0.424	26
North Bay	0.259	43	0.089	123
South Bay	0.498	22	0.090	122

a)BAFs were calculated from pg/L in water and ng/g wet weight in fish

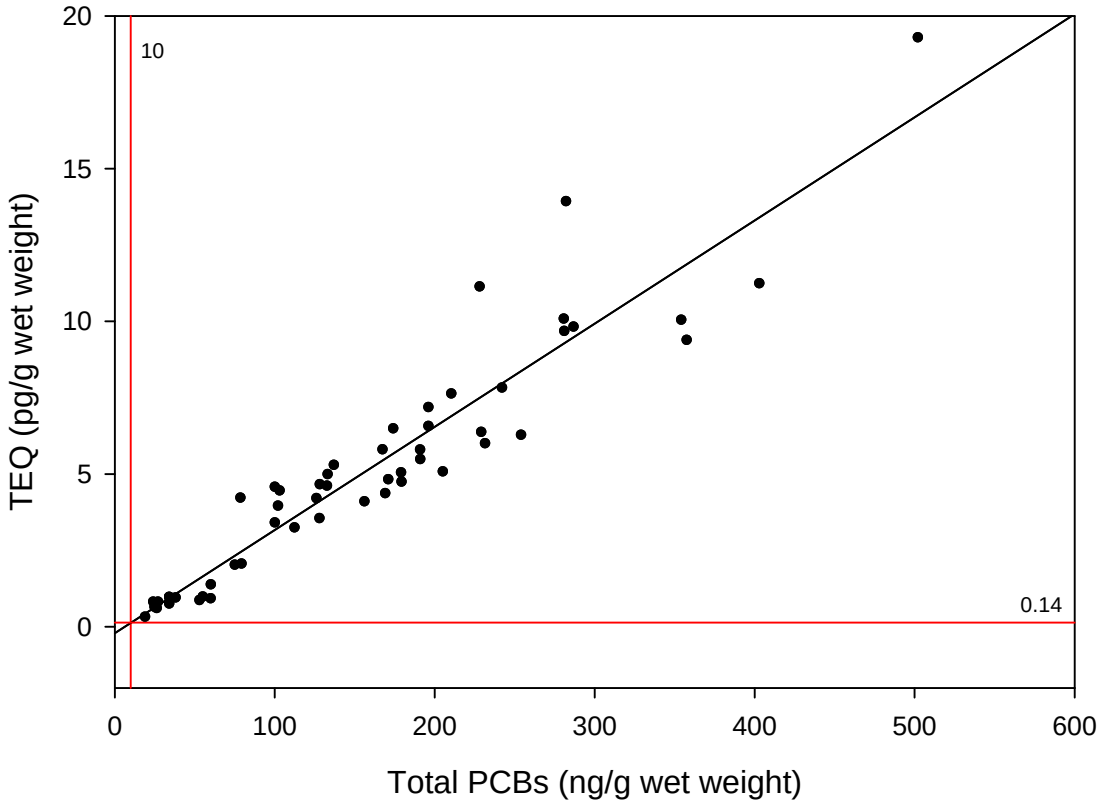

Figure 24 - Regression of Dioxin-Like PCBs Total Equivalent Toxicity by Total PCBs Concentrations in Fish

8.2 Antidegradation

A numeric target must be consistent with antidegradation policies as described in 40 CFR 131.12 and SWRCB Resolution 68-16. Antidegradation policies are intended to protect beneficial uses by ensuring that water quality will be maintained at the highest levels.

The fish tissue numeric target is designed to implement the narrative water quality objective for bioaccumulation. This numeric target is intended to achieve beneficial uses of the Bay, specifically relating to the consumption of sport fish by humans. As such, it is consistent with the established numeric water quality criterion for total PCBs. Since PCBs concentrations in sediment and fish tissue currently exceed the narrative bioaccumulation objective, attaining the numeric target will improve current water quality conditions. Therefore, the numeric target is consistent with the antidegradation policies.

9. Linkage Analysis

The TMDL linkage analysis is used to connect PCBs loads to the numeric target protective of beneficial uses in the Bay. This linkage analysis can be accomplished in a variety of ways. One common approach has been to use numerical models. Water quality models for TMDL development are typically classified as either watershed (pollutant load) models or as waterbody (pollutant response) models (NRC, 2001). A watershed model relates pollutant loads to a waterbody as a function of land use and helps allocate the TMDL among sources. A waterbody model is used to predict pollutant concentrations and other responses in the waterbody as a function of the pollutant load. Other models are used to set numerical targets such as food-web models that link sources to biological receptors.

PCBs uptake by biota from sediment is well documented in the scientific literature. In a shallow bay with a large sediment PCBs reservoir, such as San Francisco Bay, this is the most important pathway for PCBs bioaccumulation in fish. Therefore, reducing PCBs concentrations in Bay sediments is the most effective means of reducing fish tissue PCBs concentrations. In this TMDL, we use a food web model to translate the fish tissue numeric target to a corresponding sediment concentration. We then use a waterbody (mass budget) model to predict the long-term fate of PCBs in the Bay and determine the external load of PCBs that will attain the sediment concentration goal resulting in attainment of the fish tissue numeric target.

The mass budget model and food web model represent the linkage between load reductions and attainment of the fish tissue numeric target, as well as between the cause of impairment and the sources of PCBs. Based on the insights provided by these two models, we first present a conceptual model of our understanding of PCBs fate and movement between environmental reservoirs (Figure 25). Figure 25 depicts the conceptual linkage between sources, reservoirs (compartments) and receptors. In this figure, we have used larger arrows and bold text to highlight the sources and processes that we consider important. The left side of Figure 25 represents the mass budget model providing the linkage between the sources, reservoirs and processes. The right side of the conceptual model highlights the food-web model providing the linkage between PCBs reservoirs and aquatic receptors. We consider urban stormwater runoff and releases from current or historical activities as the most significant sources of PCBs to the Bay. PCBs in Bay sediments are likely to function as the major source of PCBs to biota. We consider the major mechanism of PCBs uptake by fish to result from foraging on bottom dwelling organisms (benthic organisms) living in sediment.

9.1 Food Web Bioaccumulation Modeling

PCBs impairment of the Bay is related to PCBs fish tissue concentrations. In order to implement the most effective load reductions, it is critical to understand the important factors and sources causing PCBs bioaccumulation in fish. There are two general approaches for developing a linkage between PCBs concentrations in water, sediment and biota (U.S. EPA, 2000c; U.S. EPA, 2000d). First, there is an empirical approach where one generates data to calculate bioaccumulation factors (BAFs) and biota-sediment accumulation factors (BSAFs). BAFs are the ratios of a substance's concentration in aquatic organisms to ambient water concentrations, taking the organism's trophic level into consideration. BSAFs are the ratios of concentrations in aquatic organisms compared to sediment concentrations. The second approach is to develop an equilibrium or kinetic biological food web model that considers mechanistic aspects of bioaccumulation and describes the chemical reactions and physicochemical processes taking place. These two modeling approaches are complimentary as the empirical data can be used to verify, or calibrate, the food web model results.

SFEI has developed a food web model based on Gobas (1993) and Morrison et al. (1997). Bay-specific data have shown that the fish species of concern have a diet consisting mainly of benthic organisms (Roberts et al., 2002), suggesting the importance of sediment PCBs as a source of PCBs to fish. This model predicts that the most sensitive endpoint is the protection of human health from the consumption of white croaker, and that attainment of conditions that result the fish tissue numeric target will be protective of wildlife. The model mathematically links the concentrations of PCBs in aquatic organisms and their prey to water and sediment PCBs concentrations via the food web as depicted in Figure 26 (Gobas and Arnot, 2005). Using this model, we can associate a specific PCBs concentration in fish to that in sediment, the main compartment of PCBs in aquatic environments, and water. Starting with the numeric fish tissue target of 10 ng/g, the model yields a corresponding concentration of 1 µg/kg PCBs in sediment. This sediment PCBs concentration goal is lower than the sediment concentration deemed protective of wildlife of 160 µg/kg total PCBs (U.S. EPA, 1997b), and is therefore considered to result in attainment of all beneficial uses currently impaired by PCBs. Model results validate the sediment PCBs concentration goal as protective of wildlife in San Francisco Bay. The food web model specifically predicts that this sediment goal will also be protective of wildlife, such as harbor seals, and birds such as cormorants and terns.

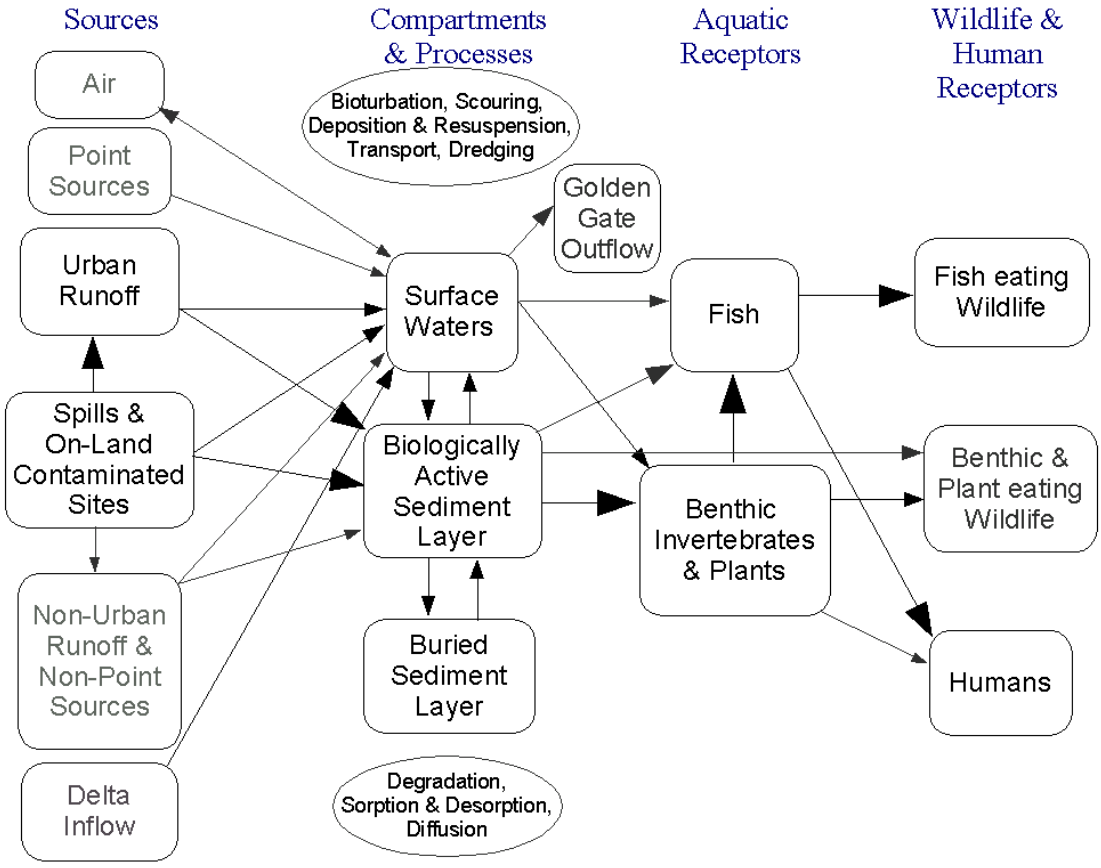

Figure 25-Conceptual Model of PCBs Movement and Fate in San Francisco Bay

This sediment goal is equivalent to reducing the total mass of PCBs in the active layer (of 0.15 m) of the entire Bay to about 160 kg. This represents a ten-fold decrease of PCBs concentrations in ambient sediments and fish tissue. The need to reduce ambient sediment PCBs concentrations by an order of magnitude to attain the 1 µg/kg sediment concentration goal is not unexpected. Empirical models such as biota-sediment accumulation factor (BSAF) are based on a one to one relationship between sediment and fish tissue PCBs concentrations. As discussed in Section 6.2, fish tissue concentrations are also an order of magnitude greater than the fish tissue numeric target for certain species. Hence the need for a ten-fold reduction in sediment to attain the fish tissue numeric target is not surprising. However, this sediment goal should not be interpreted as a clean-up goal, rather it is the long-term sediment PCBs concentration that will be attained after reduction of external loads, some targeted action on internal reservoirs of PCBs, and degradation or burial of PCBs in Bay sediments.

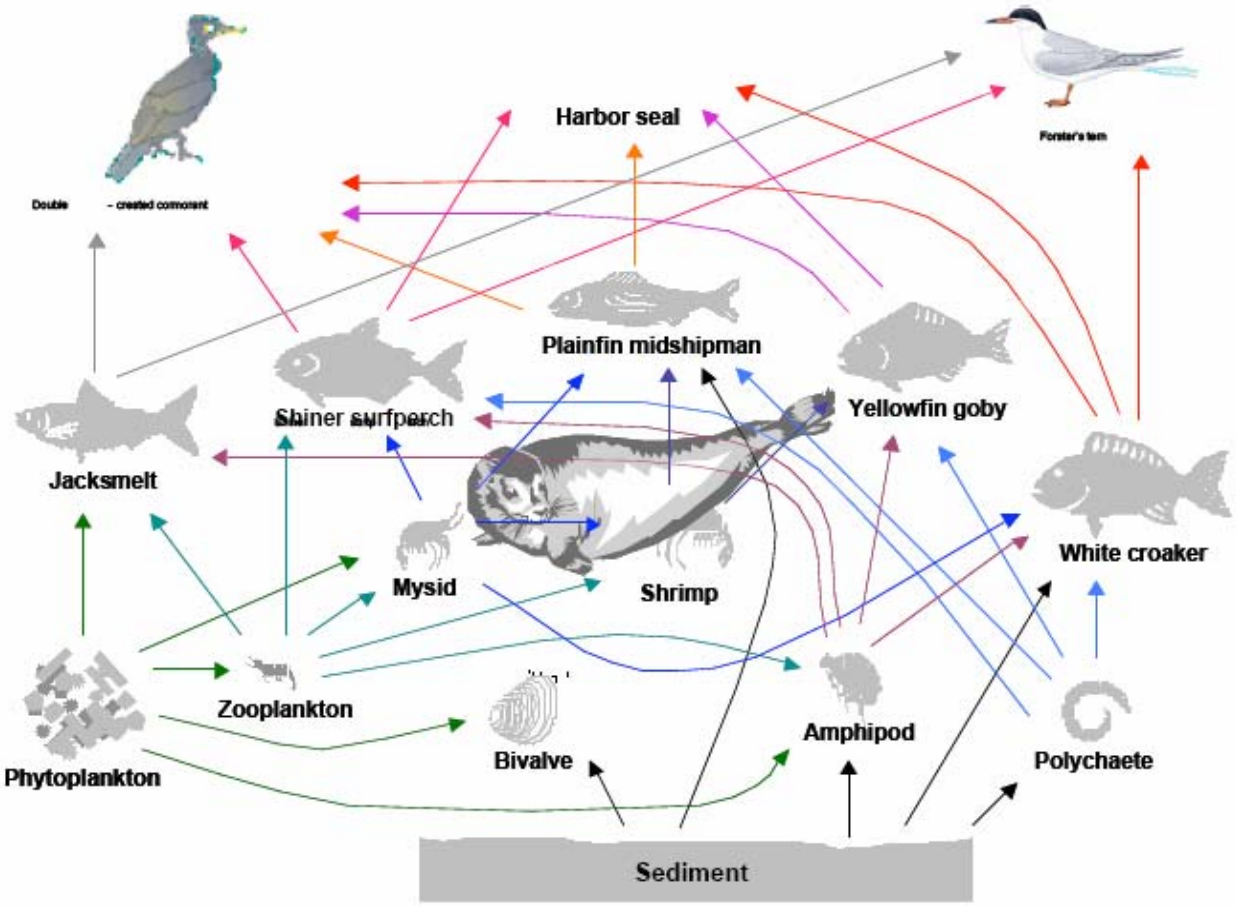

Figure 26-Food Web Model for San Francisco Bay (Gobas and Arnot, 2005)

9.2 Mass Budget Model

A mass budget model allows the exploration of different PCBs load reduction scenarios on the long-term fate of PCBs. SFEI developed a simple mass budget model for PCBs (Davis, 2003) that treats the Bay as a single box with two environmental reservoirs: water and sediment (Figure 27). This model includes eight processes of PCBs input and loss: burial in deep sediment, degradation,

external loadings, outflow to the ocean, tidal mixing, exchange with the atmosphere, natural attenuation, and transfer between sediments and water.

Reduction of the external load to10 kg/year is needed to attain a PCBs mass in the Bay of 160 kg which is equivalent to the PCBs sediment goal of 1 µg/kg. The mass budget model predicts that current external PCBs loads to the Bay of about 34 kg/year will delay the attainment of the 160 kg goal for 100 years (Figure 28). Reduction of current external loads to 20 kg/yr results in a more rapid reduction of PCBs in the active layer, attaining the goal in about 70 years. An external load of 10 kg/yr attains the 160 kg mass in about 30 years. The mass budget model predictions highlight the importance of reducing current external loads of PCBs to the Bay. Achieving these load reductions, along with cleanup of in-Bay sediment PCB-contaminated sites, will form the core of the TMDL implementation strategy.

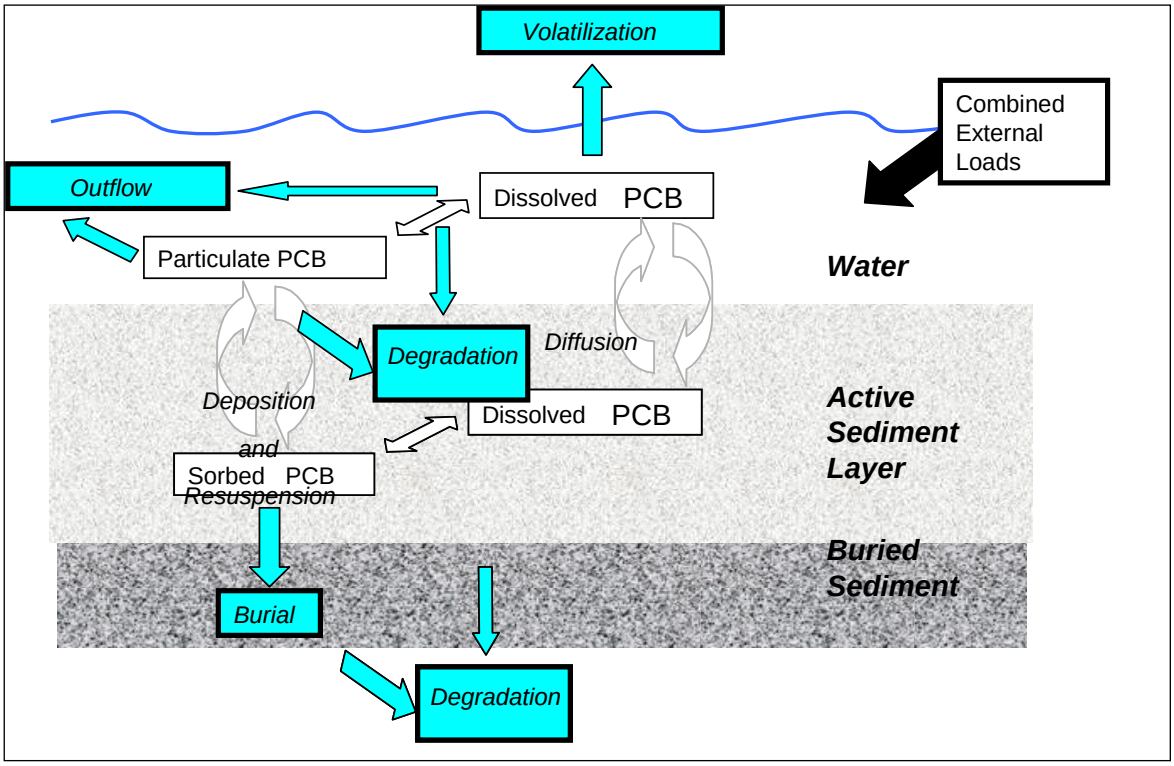

Figure 27-Mass Balance Model for PCBs in San Francisco Bay (Davis, 2003)

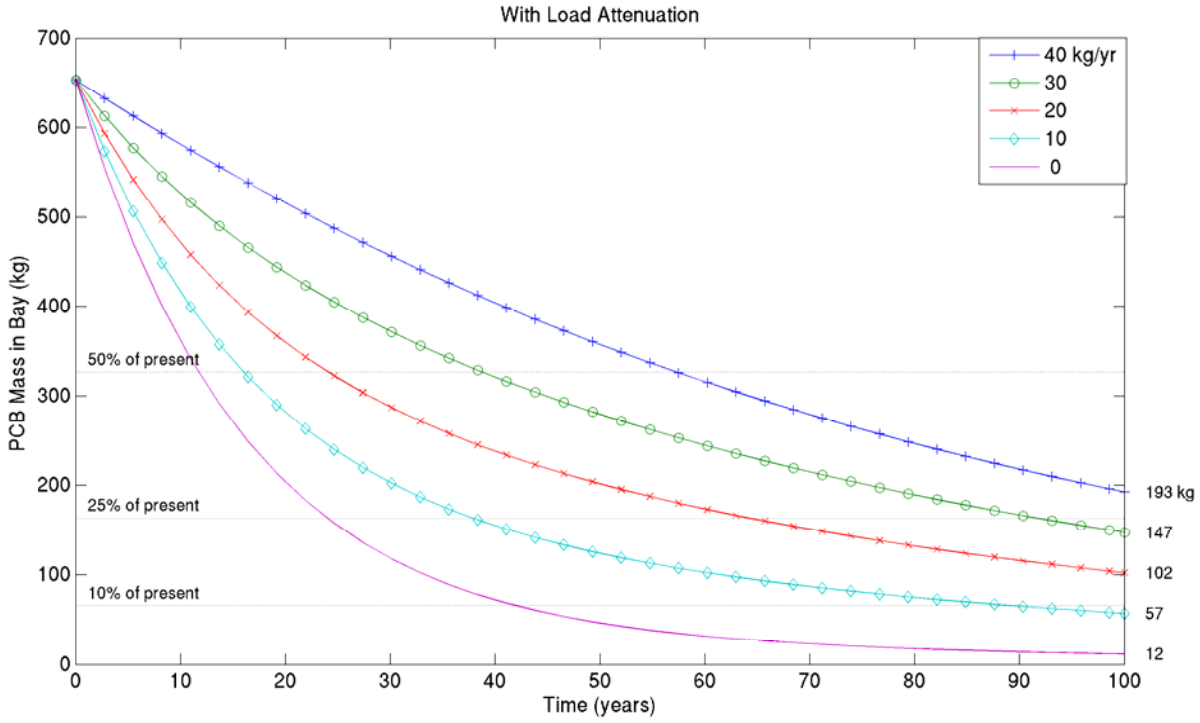

Figure 28-Predicted Long-Term Mass of PCBs in Active Sediment Layer under Different Loading Conditions (SFEI, 2007)

10. Total Maximum Daily Load and Allocations

The total maximum daily load (TMDL) is the maximum quantity of a pollutant that can enter a waterbody and attain water quality standards. The TMDL is allocated amongst the various sources of the pollutant.

10.1 Total Maximum Daily Load

The PCBs TMDL is 10 kg/yr and represents the assimilative capacity of the Bay. This TMDL necessitates achieving a load reduction of about 24 kg/yr to reduce total PCBs in the Bay active layer to 160 kg in about 30 years (Figure 28). This is equivalent to achieving the sediment PCBs concentration goal of 1 µg/kg, which will result in attainment of the fish tissue target of 10 µg/kg.

The TMDL is expressed as an average annual rather than as a daily load for several related reasons. First, the TMDL is derived from a mass budget model that depicts the long term (decadal) fate of PCBs. This model uses daily time steps derived by averaging annual load estimates, as the loadings data are not refined enough to provide discrete daily loads and therefore do not reflect variability in the data. Future data collection to verify attainment of the TMDL will also be collected on an annual timeframe, due to the large cost associated with these types of data. Therefore a TMDL is needed based on annual loads for comparison purposes. Also, the response of fish tissue PCBs concentrations to PCBs load reductions is not instantaneous. Even with immediate or rapid attainment of the sediment goal, there would be delay in attainment of the numeric fish tissue target, due to the time required for depuration (shedding from body) of PCBs by biota to occur. Finally, the TMDL is expressed as an average annual load because the natural variability in quantifying PCBs loads is much greater than the expected rate of load reductions. Long-term averaging of the loads is necessary to dampen out the variability in the data.

10.2 Categorical Load and Wasteload Allocations

We propose to allocate the TMDL (Figure 29, Table 19) among the existing external sources: direct atmospheric deposition, Central Valley watershed, wastewater dischargers, and urban and non-urban stormwater runoff. A portion of the TMDL is also allocated to potential future stormwater treatment by municipal wastewater dischargers. The linkage analysis shows that the fish tissue target can be achieved with reduction of external loads to the TMDL of 10 kg/yr. As such, internal sources are not assigned load allocations. However, reduction of internal loads will lead to an increased rate of recovery of beneficial uses. Sediment dredging and disposal, which results in an on-going net loss of PCBs from the Bay is expected to continue to decrease in-Bay disposal volumes and increase out-of-Bay disposal based on goals established in the "Long Term Management Strategy for the Placement of Dredged Material in The San Francisco Bay Region" (U.S. ACE, 1998). Therefore, sediment dredging is expected to continue to remove PCBs from the Bay. In addition, remediation of in-Bay contaminated sediment is expected to decrease potential loadings from this other internal source.

The following sections present the basis of the allocation for each source category.

10.3 Wasteload Allocations

Wasteload allocations apply to all NPDES permitted discharges to the Bay, including municipal and industrial wastewater dischargers, and municipal stormwater (urban and non-urban stormwater runoff) discharges.

Table 19-PCBs Load and Wasteload Allocations to San Francisco Bay

Source Category	Allocations
	Kilograms per year
Direct Atmospheric Deposition	0[a]
Central Valley Watershed	5
Municipal Wastewater Dischargers	2
Industrial Wastewater Dischargers	0.035
Stormwater Runoff	2
Reserved for stormwater treatment by municipal wastewater dischargers	1
Total	***10[b]***

[a] Zero allocation reflects overall net loss to the atmosphere
[b.] Total differs from column sum due to rounding.

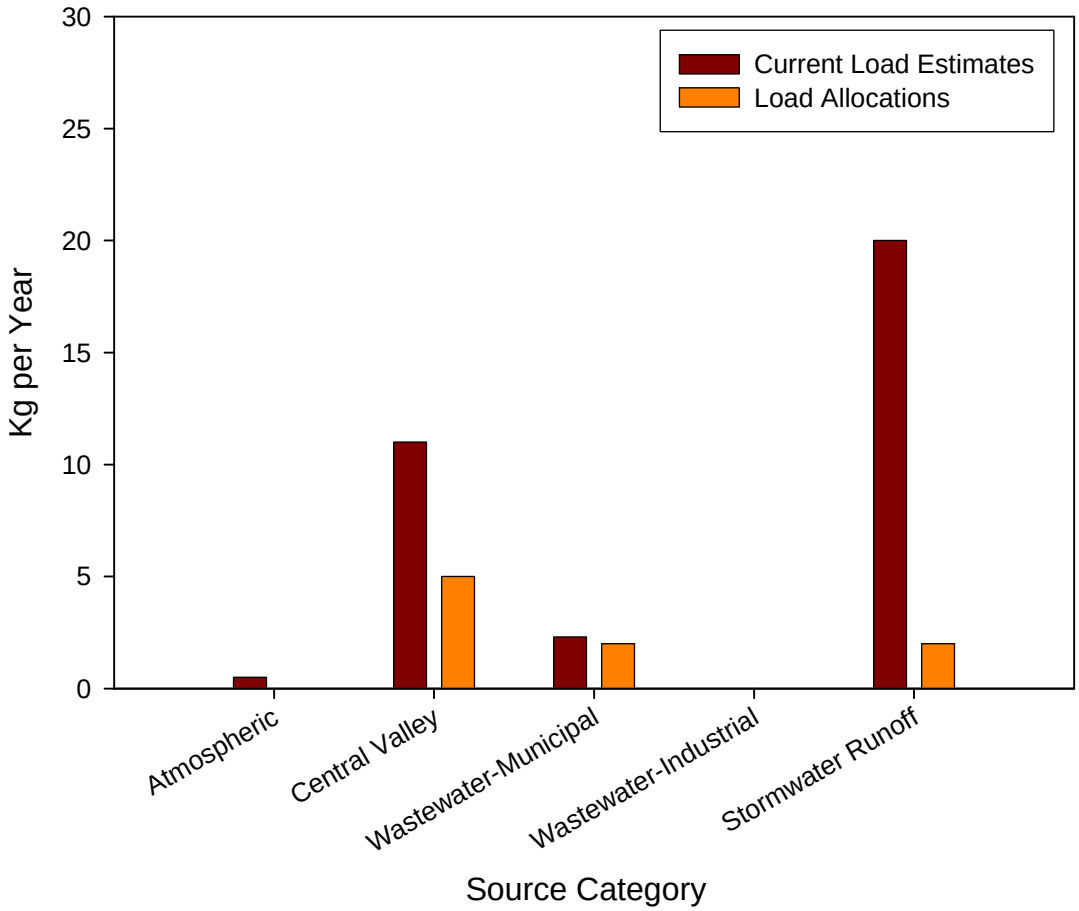

Figure 29-Loads and Allocations of PCBs to San Francisco Bay

Municipal and Industrial Wastewater Dischargers

Municipal and industrial wastewater NPDES permitted facilities discharge a small fraction of the total PCBs load to the Bay. In general, municipal and industrial wastewater dischargers operate at a high level of performance and remove PCBs via solids reduction treatment processes. The wasteload allocations for municipal wastewater dischargers total 2 kg/yr, which reflects the current estimated aggregate load to the nearest kg/yr. Although this is lower than our actual estimate of 2.3 kg/yr, it reflects the anticipated decreases in current loadings expected from implementation actions and degradation of PCBs in sources to wastewater systems. The wasteload allocations for industrial facilities total 0.035 kg/yr, which reflects estimated current loads.

Individual wasteload allocations are specified for each municipal and industrial wastewater dischargers in Table 20 and Table 21, respectively. We have insufficient or no data to calculate wasteload allocations for individual facilities based on individual facility performance at this time. Therefore, individual load allocations are based on each facility's fraction of the total yearly wastewater discharged from this source category using average annual flow data from 1999 through 2002. The resulting individual wasteload allocations do not represent individual facility actual discharge performance and do not account for variability in discharge performance. As part of the adaptive implementation plan of this TMDL, we will use data generated through implementation of the TMDL to review and revise individual allocations for Water Board consideration that account for actual performance.

Stormwater Runoff

Existing PCBs loads from stormwater runoff are estimated at 20 kg/yr. The proposed total wasteload allocation for stormwater runoff is 2 kg/yr. It reflects the resulting PCBs load when all sediment in stormwater runoff has a concentration of 1 µg/kg, the sediment PCBs concentration goal, assuming the sediment loads used to calculate the current PCBs load do not change. Sediment load estimates vary from 870,000 tons (SFEI, 2007), 930,000 tons (Krone, 1979), to 1,500,000 tons (Schoellhamer et al., 2005). Due to the uncertainty in these estimates and until they are refined, we will use 2,000,000 tons as an upper bound estimate of maximum sediment yields from local tributaries to calculate the stormwater wasteload allocations, resulting in 2 kg/yr.

Individual county-based watershed wasteload allocations for stormwater runoff are presented in Table 22. This total wasteload allocation is based on the aggregate allocation of 2 kg/yr and the fraction of the Bay-side year 2000 population residing in each permitted entity (USCB, 2000). Wasteload allocations for stormwater runoff apply to all NPDES permitted municipal stormwater discharges (Table 22). These allocations apply to unincorporated areas and all municipalities in the county that drain to the Bay and are part of the San Francisco Bay Region. They implicitly include all current and future permitted discharges within the geographic boundaries of municipalities and unincorporated areas within each county. Examples of discharges include but are not limited to California Department of Transportation (Caltrans) roadways and non-roadway facilities and rights-of-way, atmospheric deposition, public facilities, properties proximate to stream banks, industrial facilities, and construction sites. The San Francisco allocation does not account for treatment provided by San Francisco's combined sewer system. The wet weather treatment provided by the City and County of San Francisco's Southeast Plant (NPDES permit CA0037664) and the Northpoint Wet Weather Facility will be credited toward meeting the allocation.

Urban Stormwater Runoff Treatment by Municipal Wastewater Dischargers

A potential means to reduce urban stormwater runoff PCBs loads will be to strategically intercept and route runoff to municipal wastewater treatment systems. We propose a separate wasteload allocation for discharges associated with urban stormwater runoff treatment via municipal wastewater treatment systems, since such actions will result in increased PCBs loads from municipal wastewater dischargers, and the proposed individual wasteload allocations for municipal wastewater dischargers reflect current performance levels. We propose a wasteload allocation of 0.9 kg/yr, which is the difference between the TMDL of 10 kg/yr and the sum of the other proposed wasteload and load allocations.

Table 20-Individual Municipal Wastewater Wasteload Allocations

Permitted Entity	NPDES Permit	Allocations
		kilograms per year
American Canyon, City of	CA0038768	0.002
Benicia, City of	CA0038091	0.009
Burlingame, City of	CA0037788	0.01
Calistoga, City of	CA0037966	0.002
Central Contra Costa Sanitary District	CA0037648	0.1
Central Marin Sanitation Agency	CA0038628	0.04
Delta Diablo Sanitation District	CA0038547	0.04
East Bay Dischargers Authority Dublin-San Ramon Services District (CA0037613) Hayward Shoreline Marsh (CA0037702) Livermore, City of (CA0038008) Union Sanitary District, Wet Weather (CA0038733)	CA0037869	0.3
East Bay Municipal Utilities District	CA0037702	0.3
East Brother Light Station	CA0038806	0.00030
Fairfield-Suisun Sewer District	CA0038024	0.05
Las Gallinas Valley Sanitary District	CA0037851	0.01
Marin County Sanitary District, Paradise Cove	CA0037427	0.00003
Marin County Sanitary District, Tiburon	CA0037753	0.002
Millbrae, City of	CA0037532	0.007
Mt. View Sanitary District	CA0037770	0.007
Napa Sanitation District	CA0037575	0.04
Novato Sanitary District	CA0037958	0.02
Palo Alto, City of	CA0037834	0.09
Petaluma, City of	CA0037810	0.02
Pinole, City of	CA0037796	0.009
Contra Costa County, Port Costa Wastewater Treatment Plant	CA0037885	0.0001
Rodeo Sanitary District	CA0037826	0.002
Saint Helena, City of	CA0038016	0.001
San Francisco, City and County of, San Francisco International Airport WQCP	CA0038318	0.002
San Francisco, City and County of, Southeast Plant	CA0037664	0.3
San Jose/Santa Clara WPCP	CA0037842	0.4

Permitted Entity	NPDES Permit	Allocations
		kilograms per year
San Mateo, City of	CA0037541	0.04
Sausalito-Marin City Sanitary District	CA0038067	0.005
Seafirth Estates	CA0038893	0.00001
Sewerage Agency of Southern Marin	CA0037711	0.01
Sonoma Valley County Sanitary District	CA0037800	0.01
South Bayside System Authority	CA0038369	0.06
South San Francisco/San Bruno WQCP	CA0038130	0.03
Sunnyvale, City of	CA0037621	0.05
US Naval Support Activity, Treasure Island WWTP	CA0110116	0.002
Vallejo Sanitation & Flood Control District	CA0037699	0.05
West County Agency, Combined Outfall	CA0038539	0.05
Yountville, Town of	CA0038121	0.001
Total		***2[a]***

a)Total differs from column sum due to rounding

Table 21 - Individual Industrial Wasteload Allocations to San Francisco Bay

Permitted Entity	NPDES Permit	Allocations [a]
		kilograms per year
C&H Sugar and Crockett Community Services District	CA0005240	0.00006
Chevron Products Company	CA0005134	0.003
ConocoPhillips	CA0005053	0.0006
Crockett Cogeneration LP, and Pacific Crockett Energy, Inc	CA0029904	0.0006
General Chemical	CA0004979	0.0009
GWF Power Systems, Site I	CA0029106	0.0001
GWF Power Systems, Site V	CA0029122	0.0001
Hanson Aggregates, Amador Street	CA0030139	0.00003
Hanson Aggregates, Olin Jones Dredge Spoils Disposal	CA0028321	0.00003
Hanson Aggregates, Tidewater Ave., Oakland	CA0030147	0.00003
Morton Salt	CA0005185	0.00008
Pacific Gas and Electric, East Shell Pond	CA0030082	0.00003
Rhodia, Inc.	CA0006165	0.0003
San Francisco, City and Co., SF International Airport Industrial WTP	CA0028070	0.002
Shell Oil Products US and Equilon Enterprises LLC	CA0005789	0.002
Mirant Delta LLC, Pittsburg Power Plant	CA0004880	0.0008
Mirant Potrero LLC, Potrero Power Plant	CA0005657	0.0003
Tesoro Refining and Marketing Company	CA0004961	0.002

Permitted Entity	NPDES Permit	Allocations [a]
		kilograms per year
The Dow Chemical Company	CA0004910	0.0006
USS-Posco	CA0005002	0.02
Valero Refining Company	CA0005550	0.0007
Total		***0.035[b]***

a) Wasteload allocations for industrial wastewater dischargers do not include mass from once-through cooling waters. The Water Board will apply intake credits for once through cooling as allowed by law.
b) Total differs from column sum due to rounding.

10.4 Load Allocations

In this section, we present the load allocations for nonpoint source discharges of PCBs including direct atmospheric deposition and the Central Valley watershed. Allocations focus on controllable loads of PCBs. Assessment of PCBs load reductions from sources considered uncontrollable will continue as part of the implementation of the TMDL.

Direct Atmospheric Deposition

PCBs freely exchange between the Bay and the atmosphere through both deposition and volatilization. Currently, PCBs escape to the atmosphere from the Bay at a greater rate than they are deposited from the atmosphere, resulting in a net loss of PCBs. As such, the proposed allocation to direct atmospheric deposition is zero. This load allocation is limited to PCBs that deposit directly into the Bay. Atmospheric PCBs deposited in the watershed, and indirectly washed into the Bay with runoff are not included in this source category. However, the PCBs concentrations in non-urban stormwater conveyances from open space areas are low and include indirect loads from atmospheric deposition onto the landscape (KLI, 2002). Therefore, the indirect load from atmospheric deposition in commercial and industrial areas is also estimated to be small, contributing minimally to stormwater runoff discharges.

Table 22 - County-Based Watershed Wasteload Allocations for Stormwater Runoff

County	Population	Allocations
		(kilograms / year)
Alameda	1,440,000	0.5
Contra Costa	790,000	0.3
Marin	240,000	0.1
Napa	120,000	0.05
San Francisco	630,000	0.2
San Mateo	600,000	0.2
Santa Clara	1,600,000	0.5
Solano	290,000	0.1
Sonoma	110,000	0.05
Total		***2***

Central Valley Watershed

PCBs loads from the Sacramento and San Joaquin Rivers are significant. However, this load results from the large volume of sediments carried into the Bay at low sediment PCBs concentrations, although the sediment PCBs concentrations are generally greater than the sediment PCBs goal. Current estimates of sediment loads to the Bay are around 1.2 millions tons (Leatherbarrow et al., 2005; Schoellhamer et al., 2005). If all of this sediment from the Central Valley had a concentration equal to the sediment goal, the resulting PCBs loads from the Central Valley would be 1.2 kg/y. However, based on natural attenuation with a half life of 56 years (Davis, 2003), loads will not be reduced to this level in the next 100 years (Figure 30). However, natural attenuation will lower the Central Valley load to 5 kg/yr in about 40 years. As this load reduction will result in attainment of the TMDL, we propose using 5 kg/yr as the load allocation to the Central Valley watershed.

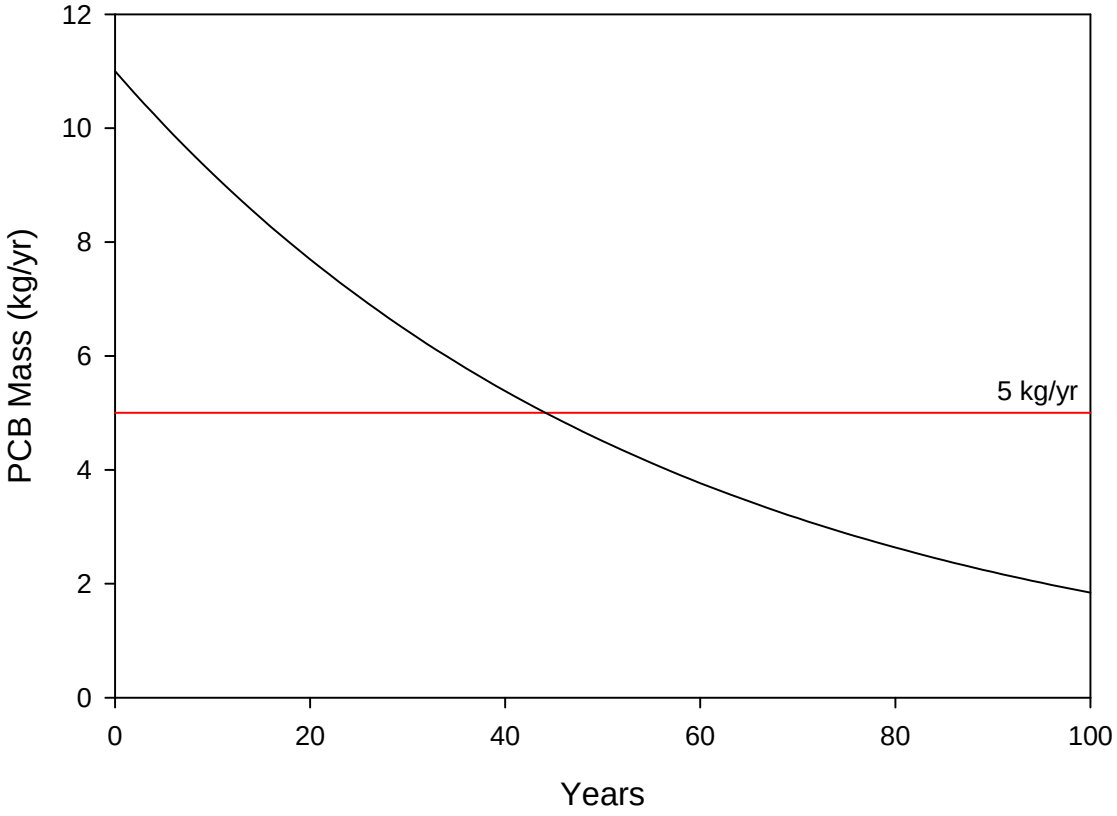

Figure 30-Natural Attenuation of Central Valley PCB Loads

10.5 Margin of Safety and Seasonality

A margin of safety needs to be incorporated into the TMDL to account for uncertainty in understanding the relationship between pollutant discharges and water quality impacts (U.S. EPA, 1991). The margin of safety can be incorporated in the TMDL either explicitly or implicitly (U.S. EPA, 2000a). Making and documenting conservative assumptions used in the TMDL analysis provides an implicit margin of safety. The purpose of the margin of safety is to ensure, given the uncertainties in developing the TMDL, that the beneficial uses currently impaired are restored.

For the PCBs TMDL, we are incorporating an implicit margin of safety. We have used a conservative approach to derive the fish tissue numeric target. We used a high-end value, the 95th percentile consumption rate, rather than the average consumption rate allowed by U.S. EPA (2000c). Therefore, the fish tissue numeric target proposed in this TMDL is as protective as possible following U.S. EPA methodology and should provide additional protection to human health from fish consumption. In addition, the wasteload allocation reserved for urban stormwater runoff treatment via municipal wastewater treatment systems is not expected to be fully utilized for several years. In the meantime, we intend to regularly review the effectiveness of implementation actions in meeting the numeric target and revise, as necessary, the proposed load and wasteload allocations. We also propose to monitor attainment of the numeric target and to reevaluate the appropriateness of the currently proposed fish tissue numeric target and associated total PCBs sediment concentration goal.

Seasonal variation also needs to be considered when developing a TMDL. As was discussed in Section 6.2, PCBs concentrations in white croaker tissue collected in the Oakland Inner Harbor showed a seasonal trend with higher concentrations in summer and fall, and lower concentrations in winter and spring. This trend does not correlate with the expected higher total loading of PCBs to the Bay during the winter associated with stormwater and Central Valley runoff. We account for this seasonal trend by applying the fish tissue target to fish collected in the summer. In this manner, attainment of the fish tissue numeric target in the season when fish are most impacted will also be protective at other times of the year.

11. Implementation

Success of the PCBs TMDL requires an adaptive management approach to implementation actions. Adaptive implementation is a cyclical process in which TMDL plans and actions are regularly assessed for their achievement of water quality standards (NRC, 2001). Adaptive implementation simultaneously makes progress toward achieving water quality standards through implementing actions while relying on monitoring and experimentation to reduce uncertainty and refine future implementation actions.

The adaptive implementation process consists of the development of a plan that includes early implementation actions based on existing knowledge that have a reasonable probability of success and an overview of options for future actions. For PCBs in the Bay, the immediate or early implementation actions are not expected to completely eliminate the Bay impairment. Therefore, future actions must be evaluated based on continued monitoring and response to the early implementation actions, as well as based on well-designed studies used for model refinement.

This implementation plan includes three general implementation categories: control of external loadings of PCBs to the Bay, control of internal sources of PCBs within the Bay, and actions to manage risks to Bay fish consumers. In addition, the monitoring section describes monitoring required to measure attainment of the numeric target, water quality objectives and to measure implementation progress towards attainment of the load and wasteload allocations. The adaptive implementation section describes the method and schedule for evaluating and adapting the TMDL and implementation plan as needed to assure water quality standards are attained based on new information, studies to fill information gaps, and tracking and evaluation of actions.

11.1. External Sources

The following sections outline the proposed approach to adaptive implementation for mass reductions of PCBs loads from external sources.

Direct Atmospheric Deposition

There is a net removal of PCBs from the Bay through the atmosphere and consequent air-borne transport. No foreseeable actions can be taken to accelerate this loss of PCBs from the Bay. In the long-term, this loss will diminish as PCBs mass in the Bay is reduced and the numeric target is attained. A reevaluation of PCBs input and loss from the atmosphere may be needed in the future as part of reevaluation of the long term fate and transport of PCBs in the Bay, or if current implementation actions do not cause a rapid enough trend towards attainment of the target.

Central Valley Watershed

Sediments entering the Bay from the Central Valley have lower PCBs concentrations than in-Bay sediment, and major PCBs mass loading events that occur during episodic high flow events mostly flow directly out of the Bay through the Golden Gate. There are very limited locations with PCBs impairment of waters within the Central Valley watershed. The allocation will be attained through anticipated natural attenuation of PCBs in the Central Valley watershed. Verification of ongoing loads and load reductions will be a regular component of the Regional Monitoring Program.

Municipal and Industrial Wastewater Dischargers

Wasteload allocations for municipal and industrial wastewater discharges reflect current PCBs loads. Loads are expected to diminish as sources of PCBs to wastewater treatment systems diminish over time. Wasteload allocations will be implemented through NPDES permits that require implementation of best management practices (BMPs) to maintain optimum treatment performance for solids removal and to identify and manage controllable sources. Developing effluent limits for PCBs that accurately reflect treatment system performance require a substantial data set that accounts for system variability of a difficult to measure pollutant that is present at very low levels (See Section 5.2). The primary PCBs treatment mechanism is solids removal, and as such, ongoing attainment of suspended solids effluent limits provides a surrogate indicator of PCBs control. In addition to maintaining optimum solids removal performance, wastewater dischargers should evaluate whether there are any controllable sources of PCBs to their systems (e.g., industrial uses of equipment that contain PCBs).

Effluent limits in NPDES permits will be based on current performance; however, it's not feasible to calculate such limits as this time. The wasteload allocations were derived from a limited data set used to estimate the total PCBs annual load to San Francisco Bay from all wastewater discharges. The data set was limited due to the technical difficulty and associated costs of measuring very low concentrations of PCBs in wastewater. Furthermore, the individual allocations, which were based on each facility's fraction of the total yearly wastewater discharged to the Bay, do not represent actual performance of individual dischargers. Consequently, implementation of the individual wasteload allocations as effluent limits is not feasible at this time. NPDES permits will require individual facilities to collect data in order to calculate daily or monthly average effluent limits that are consistent with the annual load allocations, and possibly recalculation of individual wasteload allocations based on these data. However, calculation of these limits is not feasible at this time. Implementation of the wasteload allocations is further complicated by the lack of a low-detection level analytical method that can be used for compliance determinations. The level of quantification achievable with the regulatory analytical methods promulgated under 40 CFR 136 (US EPA Method 608) is 0.5 µg/L. Accordingly, compliance with effluent limits in NPDES permits will be determined using this approved method.

NPDES permits will require quantification of PCBs loads using a lower detection level method such as Method 1668A. This method was used to derive the loading estimates that are the basis of the allocations. However, as noted above, there are technical difficulties and high analytical costs ($1,000 to $1,200 per sample) associated with measuring very low concentrations of PCBs in wastewater. Another complication is that the daily, monthly, and even annual variability of PCBs in wastewater is unknown. Consequently, calculation of limits that account for variability may require several years of data. Also, if individual performance data result in effluent limits that are not consistent with individual wasteload allocations established with this TMDL, then the Water Board will take action to revise the individual allocations as part of the adaptive implementation plan.

We also propose a separate wasteload allocation for discharges associated with urban stormwater runoff treatment via municipal wastewater treatment systems. This allocation will be implemented through a permit that will allow municipal wastewater dischargers to apply for a portion of this reserved allocation. Although we recognize that the capacity and opportunity for existing systems to receive stormwater runoff may be limited, we expect that there will be strategic opportunities to do so.

In addition to controlling PCBs sources and discharges, municipal and industrial wastewater dischargers will be required to support actions to manage the health risks associated with the consumption of PCBs-contaminated Bay fish by people that recreationally fish, and to conduct or cause to be conducted monitoring, and studies to fill critical data needs identified in the Adaptive Implementation section.

Stormwater Runoff

The stormwater runoff wasteload allocations shown in Table 22 will be implemented through NPDES stormwater permits issued to urban runoff management agencies. The stormwater runoff allocations implicitly include all current and future permitted discharges, not otherwise addressed by another allocation, and unpermitted discharges within the geographic boundaries of urban runoff management agencies including, but not limited to, California Department of Transportation (Caltrans) roadway and non-roadway facilities and rights-of-way, atmospheric deposition, public facilities, properties proximate to stream banks, industrial facilities, and construction sites.

Substantial load reductions are required to attain wasteload allocations. In addition to reductions due to natural attenuation, urban runoff management agencies can reduce PCBs loads by preventing PCBs sources from contaminating sediment or by reducing the amount of contaminated sediment discharged to the bay. Urban runoff management agencies can prevent contamination through various source control and pollution prevention activities, including remediation of on-land PCBs contaminated soils and control of releases of PCBs from electrical or other equipment, building materials and waste during demolition/remodeling, or other sources. In addition, urban stormwater PCBs loads can be reduced through capture, detention, and removal of highly contaminated sediment, and possibly by urban storm water treatment, including routing of PCBs contaminated runoff to wastewater treatment systems. Substantial infrastructure improvements are expected to result from implementation of construction and new development runoff permit requirements. These requirements, which promote controls such as planting vegetative buffers around impervious surfaces, may effectively control urban sediment discharges. Many of these actions also have the potential benefit of reducing other particle-associated pollutant loads in addition to PCBs.

Remediation of on-land PCBs-contaminated soils and effective PCBs prevention or removal infrastructure improvements will take several years to pilot test, evaluate, and then plan, design and implement on a scale sufficient to substantially reduce PCBs loads. As such, we propose a 20-year schedule for attaining the wasteload allocations. Requirements in each NPDES permit issued or reissued and applicable for the five-year term of the permit will be based on an updated assessment of best management practices, and control measures intended to reduce PCBs in urban runoff to the maximum extent practicable. This is consistent with the Water Board's phased approach towards attainment of water quality objectives in waters that receive stormwater discharges from urban areas described in Section 4.8 of the Basin Plan.

There are already efforts underway to gain insights regarding opportunities for load reductions. NPDES permit requirements will call for progressive implementation of PCBs control measures. Specific best management practices (BMPs) and control measures to be considered include:

- Abatement of PCBs in runoff from areas with elevated PCBs in soils/sediments
    - Investigate on-land PCBs contaminated soils and/or sediments – PCBs are a known historical contaminant in soils and sediments throughout the region, both in private and public properties, and public rights-of-ways. Although many contaminated sites have undergone remediation, it is likely that PCBs contaminated sites remain and continue to

contribute PCBs to stormwater. Stormwater runoff management agencies are expected to conduct, or cause to be conducted by other agencies or responsible parties, identification of on-land sites with PCBs contamination, such as private properties, public rights-of-ways, and stormwater conveyances. Stormwater runoff management agencies would be expected to report investigation results, including identifying potentially contaminated properties and/or responsible parties to the Water Board and/or DTSC, and/or in some instances to local agencies with authority to conduct oversight of hazardous materials. The Water Board, DTSC, or local agency would be expected to follow up on further investigation and oversee any necessary abatement.

- Improve system design, operation, and maintenance to increase fine sediment—PCBs are mainly transported within the stormwater conveyances attached to sediments. Many routine maintenance BMPs exist and are currently in use to control the discharge of sediments to the Bay from urban stormwater runoff, such as storm drain inlets, detention basins and street sweeping. Urban runoff management agencies are expected to implement increased routine sediment control measures within the stormwater conveyances in locations that will result in increased reduction of PCBs loads.
- Strategic runoff treatment retrofits – There are many sediment control BMPs, such as sand (or other media) filtration devices or multi-chamber treatment trains, that have not been evaluated or implemented for their ability to reduce PCBs loads in urban environments. As such, urban runoff management agencies are expected to investigate and implement as necessary new sediment treatment control measures within stormwater conveyances.
- Urban stormwater runoff treatment via municipal wastewater treatment systems—Opportunities to route dry weather and/or wet weather flows from storm drain systems to wastewater systems should be investigated, pilot tested, and implemented where feasible. This includes consideration of dry weather flows, including possible street washing flows, and wet weather flows, particularly first flush flows.

- Abatement of PCBs in runoff from all areas
  - Control/oversee removal and disposal of PCBs-containing equipment—PCBs-containing equipment remains in use with varying degrees of regulatory oversight depending on equipment type and PCBs concentration. Containment of the PCBs varies depending on equipment uses and regulatory oversight. These materials may therefore be released to the environment and enter stormwater conveyances. As such, urban runoff management agencies are expected to conduct industrial inspections to identify and cause replacement of PCBs-containing equipment remaining in the urban environment.
  - Control/manage removal and disposal of PCBs from building materials and waste during demolition/remodeling – PCBs-containing building materials remain in use with little regulatory oversight. With aging, or construction or demolition activities, these materials may be released to the environment and enter stormwater conveyances. As such, urban runoff management agencies are expected to conduct or cause to be conducted a program to manage PCBs in building materials through their inspection programs.

These BMPs and control measures are expected to be implemented in phases as NPDES permits are issued and reissued. In the first five-year permit term, stormwater permittees will be required to implement control measures on a pilot scale to determine their effectiveness and technical feasibility. Permit requirements will include the following:

- Ensure that industrial inspectors can identify PCBs or PCB-containing equipment during inspections.
- Conduct pilot studies to evaluate the presence of PCBs in building materials (e.g. caulks and adhesives) and develop BMPs to prevent PCBs from being released into the environment during building demolition and renovation.
- Conduct pilot studies to develop and implement best management practices (BMPs) and control measures where areas where elevated PCBs are detected in storm drain sediments, e.g., street cleaning, on-site treatment, investigate on land PCBs-contaminated soils and/or sediments and diversion of stormwater for treatment by wastewater treatment facilities.
- Evaluate the effectiveness of the BMPs and control measures and any environmental impacts associated with their implementation as part of the pilot studies.

The second five-year term permit requirements will be based on the knowledge gained during the first permit term and will call for strategic implementation of the BMPs and control measures identified as effective and that will not cause significant adverse environmental impacts based on the pilot studies conducted during the first permit term. The second term permit will also require development of a plan to fully implement control measures that will result in attainment of allocations, including an analysis of costs, efficiency of control measures and an identification of any significant environmental impacts.

Subsequent permits will include requirements and a schedule to implement technically feasible, effective and cost efficient control measures to attain allocations. If as a consequence, allocations cannot be attained, the Water Board will take action to review and revise the allocations and these implementation requirements as part of adaptive implementation.

In addition to controlling PCBs sources and discharges, urban stormwater management agencies will be required to develop and implement a monitoring system to quantify PCBs loads and the loads reduced through treatment, source control and other actions. The current limited monitoring of PCBs loads from local tributaries by the RMP is not sufficient to quantify PCBs loads from urban stormwater runoff and the loads reduced from urban stormwater runoff control actions. The Water Board will encourage and accept a region-wide design via augmentation of the current RMP as a means of developing and implementing the required PCBs loads monitoring.

Urban stormwater management agencies will also be required to support actions to manage the health risks of consuming PCBs-contaminated Bay fish; and conduct or cause to be conducted monitoring, and studies to fill critical data needs identified in the Adaptive Implementation section.

Urban runoff management agencies have a responsibility to oversee various discharges within the agencies' geographic boundaries. However, if it is determined that a source is substantially contributing to PCBs loads to the Bay or is outside the jurisdiction or authority of an agency the Water Board will consider a request from an urban runoff management agency which may include an allocation, load reduction, and/or other regulatory requirements for the source in question.

Urban Stormwater Runoff Treatment by Municipal Wastewater Dischargers

Routing of urban stormwater runoff through municipal wastewater treatment facilities is a means of reducing PCBs, and other particle-associated pollutant loads to the Bay. The wasteload allocation for stormwater runoff treatment via municipal wastewater treatment systems provides

an incentive to implement this control measure. As described previously, proposed implementation requirements for municipal wastewater and urban stormwater runoff discharges include investigating the feasibility and PCB-removal efficiency of intercepting and routing and treating urban stormwater runoff via wastewater treatment systems, and implementing this control measure where feasible.

A wastewater discharger that accepts urban stormwater runoff will be provided an augmentation of its individual wasteload allocation that accounts for the resulting load increase. The Water Board will consider either amending individual NPDES permits or adopting a separate NPDES permit as an implementing mechanism for this wasteload allocation that would allow wastewater dischargers opportunity to apply for a portion of this wasteload allocation to account for an increase in load associated with treating urban stormwater runoff.

11.2. Internal Sources

Internal sources of PCBs have not been allocated a load. However, we expect reductions in the mass of PCBs from these source categories based on sediment removal activities or other treatment controls. Reduction of the in-Bay PCBs mass will help accelerate the recovery of the Bay from its current impairment, by driving the overall sediment PCBs concentration towards the sediment concentration goal of 1 µg/kg.

The following sections outline the proposed adaptive implementation approach to control internal sources of PCBs.

In-Bay PCB-Contaminated Sites

A number of former and current on-shore industrial and military facilities, and associated PCBs-contaminated in-Bay sediments, exist throughout the Bay. Data are not available for every site to determine whether it is currently discharging to the Bay or contributing significantly to the impairment of the Bay. The State Board adopted a statewide Consolidated Cleanup Plan (Water Code Section 13394) in 2004. Some of the sites listed in Table 12 of this report are identified in the Statewide Consolidated Cleanup Plan. While past and/or current loads of PCBs from these sites to the Bay are difficult to quantify, potentially bioavailable PCBs in off-shore sediments pose a threat to human health and the environment. As such, cleanup of these sites is a Water Board priority and many cleanups are underway. The Water Board will maintain an inventory of contaminated sites (see Table 12) and continue to set priorities for investigating and remediating the sites. Prioritization of contaminated sites may result in identifying sites where additional information is needed to determine future actions, as well as sites where sufficient information is available to determine the need for no further actions. Our initial screening focused on identification of in-Bay sites where sediment PCBs concentrations exceeded 180 ug/kg (Table 23). The Water Board will coordinate clean-up actions with U.S. EPA and the Department of Toxic Substances Control, and issue clean-up orders as necessary. Table 23 provides the status of cleanup at these sites.

The proposed approach to cleanup PCBs contaminated sites is consistent with existing efforts. This TMDL will not result in new requirements for selecting site clean-up levels and remedial options. Rather, setting of clean-up levels at contaminated sites will continue to follow current guidance (e.g. DTSC, 1996; U.S. EPA, 1997c; U.S. EPA, 1998) and continue to be derived on a site- specific basis. The sediment goal derived in this TMDL is not a de facto clean-up level for contaminated sites not should it be interpreted as an applicable or relevant and appropriate requirement (ARAR), or a to be determined (tbd) ARAR, rather it represents the desired

conditions that when achieved throughout the Bay will result in attainment of beneficial uses of the Bay.

Table 23- In-Bay PCBs Contaminated Sites

In-Bay contaminated site remediation	Lead Agency	Status
Work Completed		
Emeryville Crescent	Water Board	Completed
Oyster Point/Shearwater (20,100 cyds removed)	Water Board	Completed
Peyton Slough	Water Board	Completed
Redwood City Harbor	U.S. ACE	Completed
Former Hamilton Army Airbase – Coastal Salt Marsh	Water Board	Completed
Moffett Field/NASA Ames-Northern Channel	U.S. EPA	Completed
Work In Progress		
Yosemite Slough Channel	Water Board	Site Investigation
Alameda Naval Air Station Seaplane Lagoon	U.S. EPA	Record of Decision
Hunter's Point Shipyard	U.S. EPA	Feasibility Study in preparation
Moffett Field/NASA Ames-Site 25	U.S. EPA	Feasibility Study in review
Oakland Army Base	DTSC	
Richmond Harbor/Potrero Point	DTSC	
Stege Marsh	DTSC	PCBs Interim Removal Action completed under Water Board lead
Work Not Started		
Cerrito Creek		
Cordonices Creek		
Guadalupe Slough		
Mission Creek		
Oakland Harbor		
Richardson Bay		
San Francisco Airport		
San Leandro Bay		
Vallejo Ferry Terminal		

Contaminated site investigations and evaluation of remedial activities will occur due to existing regulations whether or not called for in this TMDL. Parties responsible for PCBs contaminated sediment sites will continue to be required to gather the following information:

1. Estimate the pre-cleanup and post-cleanup vertical and lateral extent of PCBs in Bay sediments;
2. Estimate the pre-cleanup and post-cleanup mass of PCBs in Bay sediments;
3. Quantify rate(s) of sediment accretion, erosion or natural attenuation;
4. Implement on-land source control measures, if necessary, to ensure that on-land sources of PCBs do not further contaminate in-Bay sediments;
5. Evaluate, post-cleanup, the residual risks to humans and wildlife;

6. Support actions to reduce the health risks of people who consume PCBs-contaminated San Francisco Bay fish;
7. Conduct or cause to be conducted studies to fill critical data needs identified in the Adaptive Implementation section.

If not already completed, these requirements will be incorporated into individual site cleanup plans within five years of the effective date of this TMDL, with full implementation of the actions within ten years of the effective date of this TMDL or as agreed to in the individual site cleanup plan.

Navigational Dredging

Maintenance dredging involves the removal of sediments from navigation channels and the disposal of this sediment at different permitted sites. Dredged sediment from the Bay can be disposed of at upland sites, at in-Bay disposal sites, or at a deep-ocean disposal site (U.S. EPA and U.S. ACE, 1999a; U.S. EPA and U.S. ACE, 1999b). The Long Term Management Strategy for the Disposal of Dredged Material in the San Francisco Bay Region (LTMS) seeks to reduce the total volume of in-Bay disposal from about 2,000,000 cubic yards per year (yd^3/yr) to approximately 1,000,000 yd^3/yr within about 10 years (U.S. ACE, 2001). The lower in-Bay dredge material disposal will result in a net removal of PCBs from the Bay.

In order to ensure that buried PCBs are not being spread out through the Bay via dredge material disposal at dispersive sites, sediments disposed of in Bay should have total PCBs concentrations no greater than that in ambient surface sediments in the Bay. To provide this assurance, we propose that the PCBs concentration in dredged material disposed of in the Bay not exceed the 99th percentile total PCBs concentration of the previous 10 years of Bay surface sediment samples collected through the RMP (excluding stations outside the Bay like the Sacramento River, San Joaquin River, Guadalupe River and Standish Dam stations). Prior to disposal, the material should be sampled and analyzed according to the procedures outlined in the 2001 U.S. Army Corps of Engineers document "Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region." All in-Bay disposal of dredged material shall comply with the Dredging and Disposal of Dredged Sediment program described in Section 4.20 of the Basin Plan and the Long Term Management Strategy for the Disposal of Dredge Material in San Francisco Bay.

In addition to controlling PCBs sources and discharges, dredged material dischargers will be required to support actions to reduce the health risks of people consuming PCBs-contaminated Bay fish, and to conduct or cause to be conducted studies to fill critical data needs identified in the Adaptive Implementation section.

11.3. Risk Management

Load reductions and consequent attainment of the numeric target to support fishing in the Bay as a beneficial use will take time to achieve. However, there are actions that should be undertaken immediately to help manage the risk to consumers of PCBs-contaminated fish. The Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Toxic Substances Control, the California Department of Health Services, and dischargers to pursue risk management strategies. The risk management activities will include the following:

- Investigate and implement actions to address public health impacts of PCBs in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of

and mitigate health impacts to those people and communities most likely to be affected by PCBs in San Francisco Bay caught fish, such as sport and subsistence fishers and their families;

- Provide multilingual fish-consumption advice to the public to help reduce PCBs exposure through community outreach, broadcast and print media, and signs posted at popular fishing locations;
- Regularly inform the public about monitoring data and findings regarding hazards of eating PCBs-contaminated fish; and
- Perform special studies needed to support health risk assessment and risk communication.

11.4. Critical Data Needs

Data and other information are needed to assess both the progress toward attainment of the numeric fish tissue target and to inform the adaptive implementation of the TMDL. Dischargers will therefore be required to support the following studies to fill critical data needs.

- PCBs mass budget modeling and food web model improvements – Model refinements are needed to improve our ability to predict recovery rates of the Bay from impairment by PCBs, and to help focus implementation actions on those with the most potential for success. Better models could lead to a recalculation of the TMDL, and revised load and wasteload allocations. The TMDL will be revised if improved models predict that the current TMDL will not result in attainment of the fish tissue target. Improved models will also help evaluate whether implemented actions are effective and sufficient, and could direct the need for different or expanded implementation action. Models are also needed to improve our understanding of the role in-Bay PCBs-contaminated sites play in the Bay's recovery.

- Rate of natural attenuation of PCBs in the Bay environments – Natural attenuation is a component of the implementation of the TMDL. Attenuation rates greatly affect model prediction of recovery of the Bay from PCBs impairment. A better understanding of local rates of natural attenuation is needed in order to predict with more certainty the recovery time of the Bay, and to inform whether more, less or different implementation actions are needed. A refined understanding of the PCBs natural attenuation rate in water and sediment could lead to revised load and wasteload allocations. Specifically, load allocations to the Central Valley and navigational dredging currently rely on natural reduction of PCBs and new findings could result in load reduction actions implementation.

11.5. Monitoring

Monitoring is needed to demonstrate progress toward attainment of allocations and the numeric target. The discharger-funded RMP currently monitors PCBs in San Francisco Bay fish, sediments, and water. The Water Board will call on dischargers to support the RMP to monitor PCBs in fish (as specified in the numeric target), in sediments and water, at a spatial scale and frequency to track trends in the decline of PCBs and to demonstrate attainment of the numeric fish tissue target and sediment concentration goal. Monitoring will provide information on the progress in attaining the TMDL target, and therefore the success of actions implemented. Long term data are needed to verify the recovery rate of the Bay, and compare this with a model predicted recovery rate. These efforts will also inform whether the actions implemented are effective in reducing PCBs to the TMDL target or whether further actions are required. A refined

understanding of long term PCBs concentration trend data in water, sediment and biota could lead to a recalculation of the TMDL, and revised load and wasteload allocations.

Monitoring of load allocations to demonstrate progress towards attainment shall be conducted by municipal and industrial wastewater dischargers and by urban runoff stormwater agencies. The RMP also conducts regular monitoring of PCBs loads from the Central Valley and some limited monitoring of PCBs loads from local tributaries. The current limited monitoring of PCBs loads from local tributaries by the RMP is not sufficient to quantify PCBs loads from ~~urban~~ stormwater runoff or the loads reduced from urban stormwater management control actions. As described in the discussion of implementation of Central Valley allocations, the Water Board will also call on dischargers, via the RMP, to verify ongoing loads and load reductions to allow evaluation of trends in the loads of PCBs from the Central Valley watershed and to confirm that loads are being reduced due to natural attenuation.

11.6. Adaptive Implementation

Adaptive implementation entails taking immediate actions commensurate with available information, reviewing new information as it becomes available, and modifying actions as necessary based on the new information. Taking immediate action allows progress to occur while more and better information is collected, and the effectiveness of current actions is evaluated (NRC, 2001). In this manner, this TMDL will be implemented in phases starting with actions described in each source category, risk management, monitoring, and critical data needs section above with subsequent modifications and phases based on improved knowledge of PCBs sources, control measures, and fate in the environment. In particular, there are four principal ongoing activities that may necessitate TMDL adaptation.

First, the ongoing monitoring being conducted through the Regional Monitoring Program will allow us to improve our understanding of the rate of natural attenuation and recovery and our understanding of patterns of PCB concentrations in tissue and sediment. Interpretation of these data may result in improved ways of expressing TMDL targets or of evaluating them using monitoring data.

Second, there are ongoing efforts to improve understanding of the fate and transport of PCBs in the Bay and to model the relevant biological, physical and chemical processes. Improved modeling capabilities combined with bathymetric and sediment core data allow us to better predict how the Bay will respond to management actions and changing conditions. This will, in turn, inform the need to adapt implementation schedules.

Third, we will continue to pursue clean-up of in-Bay contaminated sites. By evaluating the degree to which in-Bay contaminated sites can be remediated and evaluating the resultant impact on PCB levels in the Bay and its biota, we will gain valuable insights relevant to determining the pace at which the beneficial uses of the Bay will be restored.

Last, the success of the TMDL depends in large part on concerted efforts to locate and evaluate opportunities to control on-land PCB sources and the PCB load conveyed to the Bay via urban stormwater runoff. The progressive approach for addressing this challenge is described in the stormwater runoff implementation section above in more detail.

We will be assessing progress in each of these four areas on a continuing basis to determine if the quantity and quality of emerging information are sufficient to warrant adaptation of the TMDL.

The Water Board will adapt the TMDL and implementation plan to incorporate new and relevant scientific information such that effective and efficient measures can be taken to achieve the TMDL allocations and numeric fish tissue target. The Water Board, via an annual report by Water Board staff on TMDL implementation progress, will evaluate new and relevant information from implementation actions, monitoring, special studies, and scientific literature. Within ten years of the effective date of the TMDL, any necessary modifications to the targets, allocations, or implementation plan will be incorporated into the Basin Plan. The Water Board will make new information available to the public and will allow opportunities for public participation regarding the results of the periodic review of the TMDL, attainment of load allocations, attenuation of PCBs, or revised TMDL derivations.

The Water Board will adapt the TMDL and implementation plan to incorporate new and relevant scientific information such that effective and efficient measures can be taken to achieve the allocations and numeric fish tissue target. The Water Board staff will present an annual progress report to the Water Board on implementation of the TMDL that includes evaluation of new and relevant information that becomes available through implementation actions, monitoring, special studies, and the scientific literature, and within ten years of the effective date of the TMDL, the Water Board will consider amending the PCBs TMDL and implementation plan as necessary to ensure attainment of water quality standards in a timely manner while considering the financial and environmental consequences of new control measures.

In particular, achievement of the allocations for stormwater runoff, which is projected to take 20 years, will be challenging. Consequently, the Water Board will consider modifying the schedule for achievement of the load allocations for stormwater runoff provided that dischargers have complied with all applicable permit requirements and all of the following have been accomplished relative to that source category or discharger:

- A diligent effort has been made to quantify PCBs loads and the sources of PCBs in the discharge;
- Documentation has been prepared that demonstrates that all technically and economically feasible and cost effective control measures recognized by the Water Board as applicable for that source category or discharger have been fully implemented, and evaluates and quantifies the comprehensive water quality benefit of such measures;
- A demonstration has been made that achievement of the allocation will require more than the remaining ten years originally envisioned; and
- A plan has been prepared that includes a schedule for evaluating the effectiveness and feasibility of additional control measures and implementing additional controls as appropriate.

12. Regulatory Analyses

This section provides the regulatory analyses required to adopt the Basin Plan amendment to establish the PCBs TMDL. It includes a discussion of the results of an environmental impact analysis and a discussion of economic considerations. The environmental impact analysis is required under the California Environmental Quality Act (CEQA) when the Water Board adopts a Basin Plan amendment under the Water Board's certified regulatory program (California Public Resources Code § 15251 [g]). The environmental analysis also satisfies Public Resources Code § 21159 which applies when adopting rules or regulations requiring installation of pollution control equipment, compliance with a performance standard, or treatment requirement. It evaluates the reasonably foreseeable environmental impacts of the methods of compliance with the implementation plan in Section 11, and describes the reasonably foreseeable and feasible mitigation measures that could be used to reduce significant environmental impacts. The discussion of economic considerations is provided in accordance with Public Resources Code § 21159 [a] [3] [c] which requires an analysis of economic factors related to costs of implementation of the new rules or regulations. This Staff Report, including the CEQA checklist and these analyses, constitute a substitute environmental document.

The results of the assessment of environmental impacts and economic considerations show that the Basin Plan amendment is not likely to result in long-term, significant impacts and will not cause immediate, large scale expenditures by the entities required to implement the PCBs TMDL. Many of the actions identified in the Basin Plan amendment to implement the PCBs TMDL are built on existing efforts to improve management of urban runoff, treatment of wastewater, and to remediate upland and in-Bay PCBs-contaminated sites. Many of the actions will be implemented in a phased manner after pilot studies are conducted to evaluate those specific BMPs or control measures that are effective both from a load reduction perspective and from a cost perspective. This section analyzes environmental impacts for many of the potential individual projects that may be developed to implement the PCBs TMDL to the extent such impacts can be identified at this time. At such time as individual projects are proposed, the impacts of those individual projects will be evaluated as to location, specific technologies, size, quantity, feasibility and any mitigation necessary to address the identified environmental impacts. These project-specific impacts are too speculative to evaluate at this time. We anticipate that these projects would be required to mitigate any potential environmental impacts. Mitigation measures that are both feasible and already in common use as standard industry practice, are discussed in this analysis of environmental impacts and are expected to reduce all potentially significant impacts to less than significant levels.

12.1. Environmental Impact Analysis: CEQA Compliance

The Water Board is the lead agency responsible for evaluating the potential environmental impacts of the proposed Basin Plan amendment to establish the PCBs TMDL and implementation plan for San Francisco Bay. To accomplish this evaluation, a standard CEQA checklist was prepared (Appendix A) along with an explanation of the results of the analysis. It includes a discussion of the potential environmental impacts as well as mitigation measures that would be used to eliminate or reduce the impacts. Because the Water Board cannot mandate adoption of any specific compliance method, the analysis provided here should be viewed as comparable to a Tier 1 environmental impact review. It does not and cannot present detailed analysis of project-specific

impacts at specific locations in the San Francisco Bay watershed, since such projects have yet to be defined, and thus, any analysis would be speculative at this time. Our assessment evaluates likely impacts of reasonably foreseeable means of compliance and the reasonably foreseeable mitigation measures that would reduce any potentially significant impacts.

12.2. Project Description

Sections 2.2 and 3 of this Staff Report present the project definition, objectives and environmental setting that provide the basis for the CEQA evaluation. The project is composed of a Basin Plan Amendment that includes a TMDL of 10 kg/yr for San Francisco Bay based on a numeric target for fish tissue (10 ug/kg) protective of human health and wildlife beneficial uses and allocates the TMDL among the various external sources. This target is based on evaluating the lifetime incremental cancer risk of one in a 100,000 for an adult recreational sport fisher. It is derived from assuming a 70 kilogram person, consuming on average 32 grams of fish caught in San Francisco Bay per day, over a lifetime of 70 years. The fish consumption rate of 32 g/day is based on a San Francisco Bay survey (SFEI 2000a). This consumption rate represents the 95th percentile upper bound estimate of consumption for local sport fish consumers based on their four-week recall of eating Bay-caught fish.

The Basin Plan amendment includes: a plan to implement the TMDL using a phased approach; a monitoring program to evaluate progress towards achievement of the target; and a plan and schedule for additional studies to improve our technical understanding relevant to the PCBs TMDL and implementation plan. It also requires reviewing progress toward meeting targets, implementing actions, and evaluating continued appropriateness and effectiveness of actions. The phasing of the implementation plan involves conducting pilot studies and/or feasibility studies for some actions, prior to requiring those actions to be undertaken. The proposed implementation schedule also provides a realistic timeframe in which to complete the tasks required by the TMDL and a timeframe to evaluate the need for modifications to the TMDL and the implementation plan.

12.3. Project Objectives

The primary objective of the project is to achieve the PCBs fish tissue target specified by the TMDL in order to restore the currently impaired beneficial uses of commercial and sport fishing in the Bay.

The objectives of the project with respect to PCBs, which are most relevant to the analyses of environmental impacts and alternatives, are listed below (the entire list is found in Section 2.2):

- Attain numeric PCBs water quality criteria and the bioaccumulative narrative water quality objective established for the Bay in as short a time frame as feasible.
- Protect beneficial uses of the Bay related to sport fishing and wildlife
- Provide interim risk management programs to protect recreational sport fishing anglers.
- Set target(s) to attain relevant water quality objectives in all parts of the Bay.
- Avoid imposing regulatory requirements more stringent than necessary to meet the targets designed to attain water quality standards.

- Reduce loading of PCBs to the Bay from external sources.
- Comply with the Clean Water Act requirement to adopt a TMDL for a 303 (d) listed impaired water body.
- Initiate actions to reduce PCBs discharges, while continuing to accommodate new information on PCBs fate in the environment.

12.4. Reasonably Foreseeable Methods of Compliance

Implementation Plan requirements not evaluated in this CEQA analysis
Some of the TMDL implementation plan requirements of the Basin Plan amendment are not evaluated in this Section of the Report because they are requirements that do not cause a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. Those requirements include evaluations of potential actions, monitoring, participation in additional research to fill critical data needs, and development of public outreach and human health risk management programs.

Implementation Plan requirements evaluated in this CEQA analysis
Implementation measures that are reasonably foreseeable methods of compliance that result in a physical change in the environment are reviewed in this analysis. An explanation of what is evaluated in this analysis is provided below and organized by source category.

External Sources

Wastewater and Stormwater Implementation

The implementation plan for the TMDL is considered a phased plan because many of the actions necessary to achieve the TMDL allocations will require an evaluation as part of a pilot study or feasibility study prior to implementation. Many of the actions that are required to achieve reductions in PCBs loading to the Bay will be required as part of an NPDES permit for municipal and industrial wastewater dischargers or stormwater runoff management agencies.

The NPDES permit requirements for urban stormwater runoff would be implemented in a phased approach. The first five years of TMDL implementation are anticipated to include pilot studies that will test a variety of control measures in order to implement measures that will achieve load allocations in the most effective and cost-efficient manner. The second five-year permitting period will feature strategic implementation of those measures found to be effective through pilot testing conducted in the first permit term. In 10 years, it is expected that the permit would require a schedule for full implementation of the technically practicable, effective and cost efficient BMPs and control measures to the maximum extent practicable. It is speculative at this time to identify specific individual projects that will be implemented based on the results of the pilot studies. Instead we have has compiled a general list of reasonably foreseeable compliance measures that may be considered as part of a pilot study or may eventually be implemented to attain the load allocations identified in the Basin Plan amendment for the external sources of municipal and industrial wastewater, and urban stormwater runoff.

The general list of reasonably foreseeable means of compliance evaluated in this environmental impact analysis for these source categories includes the following:

- Removal and disposal of PCBs-containing equipment
- Removal and disposal of PCBs from building materials
- Removal and disposal of PCBs residuals in sewer lines
- Survey and remediation of contaminated soil or sediment in public rights-of-way, wastewater conveyances, and private properties
- Increased street cleaning (includes sweeping or washing)
- Storm drain and inlet maintenance (above and beyond normal practices)
- Construction, operation, and maintainance of facilities/units to intercept, divert and treat storm water (e.g., on-site system retrofits including detention basins, infiltration basins, sand filters, bioretention drainage areas etc.)
- Strategically routing/diverting stormwater to POTWs (i.e., municipal wastewater treatment plants) for treatment

These measures are evaluated in this environmental analysis without much detail as to location, size or number, or location-specific feasibility, since they will be evaluated in the future as part of the pilot projects undertaken by the dischargers. BMPs and control measures to be evaluated as part of a pilot study include both potentially new activities as well as augmentation of existing actions. For example, the number and extent of projects to remove and dispose of PCBs-containing equipment and building materials containing PCBs is currently unknown. Storm drain maintenance and street cleaning are all conducted as part of normal municipal stormwater programs. They are included in this analysis because adoption of the PCBs TMDL may increase their frequency.

Pilot studies will be required under a future NPDES stormwater permit to evaluate the feasibility of the construction, operation, and maintenance of new facilities to intercept, divert, and treat stormwater. Therefore, the number and locations of these projects are uncertain. No specific type of project is required; rather this is an implementation measure that could be selected if strategically feasible in some locations. The pilot studies are intended to analyze the environmental impacts of implementing these types of measures.

No specific project to route stormwater to a wastewater treatment plant is currently required. Studies are underway by the San Francisco Estuary Institute under funding from the State Water Resources Control Board to investigate opportunities, i.e., locations of PCB-contaminated stormwater runoff occurring in the vicinity of pump stations. Based on the results of these studies, pilot projects could be pursued by the stormwater management agencies or municipal wastewater treatment facilities.

Central Valley

No actions for the Central Valley watershed load allocations are required other than monitoring, and thus, there are no reasonably foreseeable compliance measures to evaluate here.

Internal Sources

In-Bay Contaminated Hot Spots

There are no load allocations to internal sources, therefore no new actions are explicitly required of any regulated party by this TMDL for in-Bay PCB-contaminated hot spots.

Projects to remediate in-Bay PCB-contaminated sediments have been completed in some locations, are in-progress at others, and may occur in the future for sites identified in Table 23 of this Report.

The environmental impacts of cleanup activities at some of the sites that were identified as part of the Bay Protection Toxic Cleanup Program were analyzed in a programmatic level environmental evaluation by the State Water Resources Control Board during development of the Consolidated Toxic Hot Spots Clean Up Plan (SWRCB, 2003). The environmental evaluation concluded that the action of adoption of the Consolidated Cleanup Plan by the SWRCB will not result in significant adverse impacts. Any adverse environmental effects that may occur due to remediation under the proposed Plan would be substantially the same as environmental effects of remediation if the Plan is not adopted. This is because the regulatory framework requiring remediation and the regulatory framework protecting the environment against adverse affects of remediation, are unchanged by the adoption of the proposed Plan. In other words, the Plan will neither affect the requirements for remediation nor the way in which the environment is protected against adverse effects through permitting, CEQA, Waste Discharge Requirements, Cleanup Orders, etc. This is also true in the case of this PCBs TMDL.

Remediation of PCBs-contaminated hot spots may support attainment of the fish tissue target and TMDL, based on decreases in the mass of PCBs in localized in-Bay surface sediments. Despite the fact that these actions are not required by this Basin Plan amendment, there may be a fair argument that such actions may occur due to the project or may receive greater attention and resources from state, federal or local agencies and thus the number of projects in an active stage at any given time may be accelerated, thus the environmental impacts of selected potential remedial alternatives that involve a potential physical change in the environment are evaluated in this section. This analysis is a general evaluation of environmental impacts that could occur due to remediation of PCBs contaminated sediment. A feasibility study is anticipated to be required prior to implementing any remedial alternative. Some potential remedial alternatives, such as monitored natural recovery, are not evaluated here because they do not involve a physical change in the environment. The fact that they are not evaluated in this report has no bearing on their potential effectiveness as a remedial alternative.

Detailed clean-up plans would also require an assessment of environmental impacts that would be conducted by the lead agency at time of review and approval. These projects could be carried out under the authority of the Water Board, DTSC, US EPA, or in some cases local agencies. In each case, the lead agency is responsible for ensuring environmental impacts are avoided, minimized, and mitigated.

The reasonably foreseeable means of compliance evaluated in this environmental impact analysis for this source category include the following:

- Remediation of contaminated sediment with dredging and appropriate disposal

- Remediation of contaminated sediment with dredging, appropriate disposal, and capping of residual contamination in-situ

Navigational Dredging

There is no load allocated to navigational dredging, instead the TMDL implementation plan establishes a methodology to determine whether sediments dredged to support navigation could be disposed of in-Bay. Application of the methodology to navigational dredging project could result in less material being allowed to be disposed of in-Bay over time if the ambient concentration of PCBs in sediments decreases. A Basin Plan amendment adopted by the Water Board, and approved by State Board on November 6, 2007, sets a long-term overall goal for in-Bay disposal of dredged material at designated in-Bay disposal sites at one mcy (or less) per year to be attained step-wise over a 12-year period. This goal requires a reduction of in-Bay disposal. The environmental impacts of reductions in-Bay disposal were evaluated in the Long Term Management Strategy for Dredged Material Environmental Impact Statement/Programmatic Environmental Impact Report (US EPA 1996) and was identified as being more environmentally beneficial than allowing in-Bay disposal. Navigation dredged material not disposed of in-Bay is likely to be taken to the deep ocean disposal site. The environmental impacts of the implementation plan actions for navigational dredging are therefore not further evaluated in this analysis.

12.5. Regulatory Framework

Agencies with permit review or approval authority over the implementation of reasonably foreseeable means of compliance include the following:

San Francisco Bay Water Board

Issues Clean Water Act Section 401 Water Quality Certifications required to conduct dredging or filling of waters of the U.S., including San Francisco Bay; NPDES permits, WDRs and Cleanup and Abatement Orders for discharges that pollute or threaten to pollute surface or groundwater, and other orders as necessary to enforce the Porter Cologne Water Quality Control Act of 1969.

Bay Conservation and Development Commission

Permits actions subject to the San Francisco Bay Plan; issues consistency determinations with the Coastal Zone Act Reauthorization Amendments of 1990.

The Department of Toxic Substances Control

Issues orders in accordance with Chapter 6.8 of Division 20 of the California Health and Safety Code.

U.S. Army Corps of Engineers

Issues Clean Water Act section 404 permits for dredging and fill projects in navigable waters.

U.S. Fish and Wildlife Service

Conducts section 7 consultation for effects to listed federal species.

National Oceanic Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS)
Conducts section 7 consultation for effects to migratory and endangered fish species

California Department of Fish and Game
Provides section 2081 consultation for effects to listed species.

Municipalities/Counties
Issue building and/or grading permits; enforce of noise ordinances

12.6 Environmental Checklist

A significant impact is defined by CEQA as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance" (14 CCR Title 14, Chapter 3, Article 20, Section 15382. Our analysis, prepared using the CEQA checklist (Appendix A), identified some potentially significant environmental impacts in the areas of air quality, biological resources, hydrology and water quality, noise, and utilities and service systems.

Mitigation Measures
Although some potentially significant impacts have been identified, recommended mitigation measures, many of which are mandatory conditions of local, state, and federal regulations and permits, (see Section 12.5, e.g., mitigation requirements of the Water Board's 401 Water Quality permits) will eliminate entirely or reduce these impacts to a "Less than Significant with Mitigation Incorporated" level. As used in this analysis and as defined by CEQA (Article 20, Section 15370), mitigation can be divided into four types:

1. Avoiding the impact altogether by not taking a certain action or part of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying or eliminating the impact over time by preservation and maintenance operations during the life of the action.
4. Compensating for the impact by replacing or providing substitute resources or environments.

It is likely that all of these mitigation strategies will be used alone or in a variety of combinations to address specific impacts associated with individual projects developed as means of compliance with the Basin Plan amendment.

It should be noted that the Water Board will not require any actions or projects to implement the PCBs TMDL that would lead to significant, permanent, negative impacts on the environment. Furthermore, we anticipate that all potentially significant environmental impacts will be mitigated to less than significant levels either through the Water Board's regulatory and permitting authorities or under those of other agencies with jurisdiction in relevant areas, such as U.S. Environmental Protection Agency (U.S. EPA), U.S. Fish and Wildlife Service (USFWS), NOAA/NMFS, Occupational Health and Safety Administration (OSHA), U.S. Army Corps of Engineers (U.S. ACE), California Department of Fish and Game (CDFG), California Department of Toxic Substances

Control (DTSC), and San Francisco Bay Conservation and Development Commission (BCDC).

Results of the Environmental Analysis

The CEQA checklist (Appendix A) summarizes the results of the analysis of potential environmental impacts associated with the reasonably foreseeable means of compliance with the PCBs TMDL as proposed in the Basin Plan amendment. The standard CEQA rating system, which was used here, includes four designations of the level of significance. They are: Potentially Significant (PS), Less than Significant (LTS), Less than Significant with Mitigation Incorporated (LTSM), and No Impact (NI). Table 24 presents those environmental impacts determined to be potentially significant before mitigation and the associated mitigation measures. A discussion of the environmental impact categories on the checklist, level of significance, and recommended mitigation measures follows the summary table.

Table 24-Summary of Potentially Significant Environmental Impacts and Mitigation Measures

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
3. AIR QUALITY 3-B Contribute to Air Quality Violation				
<u>On-Land</u> • Construct, operate, and maintain facilities/units to intercept, divert, and treat stormwater • Remediation of PCBs-contaminated soil or sediment from public rights-of-way, storm water conveyances, and private property • Increased street Cleaning (washing and/or sweeping) • Storm drain and inlet maintenance • Strategically route stormwater to POTWs for treatment	Impacts: • Short-term increase in particulates (PM-10) from vehicle exhaust • Short-term increase in photo-chemical smog constituents from vehicle exhaust • Construction-related dust • Diesel exhaust (nuisance odors)	PS	<u>On-Land</u> Implementation of established BMPs and site-control measures to control and minimize dust include, but not limited to: • Spray down construction sites with water or soil stabilizers • Cover all hauling trucks • Maintain adequate freeboard on haul trucks • Limit vehicle speed in unpaved work areas • Suspend work during periods of high wind or air quality restrictions • Install temporary windbreaks • Use of low sulfur or emulsified diesel fuel to reduce constituents of photo-chemical smog • Use of soot traps on diesel equipment to reduce particulates Additional BMPs for removal of PCBs-containing equipment/building materials: • Use covered dust chutes for removal of material • Create a Soil Management Plan • Test and monitor on-site air quality	LTSM

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
In-Bay • Dredge contaminated sediment with offsite disposal (all methods)	Impacts: • Short-term increase in airborne particulates (PM-10) from barge and equipment exhaust • Short-term increase in photo-chemical smog constituents from barge and equipment exhaust	PS	In-Bay • Use of electric-powered excavating equipment and barges in place of diesel-fueled equipment and barges • Use of low sulfur or emulsified diesel fuel to reduce constituents of photo-chemical smog • Use of soot traps on diesel equipment to reduce particulates	LTSM
4. BIOLOGICAL RESOURCES 4-A, C and D Substantial adverse effect on special status species, federally protected wetlands and substantially interfere with migratory fish				
In Bay • Dredge contaminated sediment (all methods)	Impacts: • Disturbance of near-shore tidal wetlands • Short-term habitat disturbances such as vegetation removal, noise, presence of humans	PS	In-Bay Mitigation measures include: • Use of electric dredging equipment (noise reduction) • Use of clamshell buckets and silt screens to minimize re-suspension of sediment • Vibration dampening material on equipment • Adherence to established state and federal policies for "No Net Loss" of wetlands • Adherence to policy to avoid, minimize, mitigate for projects involving wetlands • Adherence to Water Board permit requirements, USFWS, NOAA/NMFS, CDFG consultation requirements • BMPs to minimize project footprint • Pre-construction survey for endangered or sensitive species • Presence of trained on-site biological monitors • Training for construction personnel to	LTSM

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
			recognize and avoid sensitive species	
8. HYDROLOGY AND WATER QUALITY 8-A Violate any water quality standards or waste discharge requirements				
In-Bay • Dredge PCBs-contaminated sediment with off-site disposal • Dredge (partial) and cap remainder in situ	Impacts: • Short term violations of water quality objectives due to sediment resuspension or creation of decant water	PS	In-Bay Mitigation measures include: • Comply with requirements of water quality certification or waste discharge requirements • Installation of temporary sheet pile enclosure or silt curtains • Treatment or proper disposal of decant water	LTSM
11. NOISE 11-A and B Expose people to noise or groundborne vibration in excess of local ordinances or other standards				
On Land • Removal and disposal of PCBs-containing equipment • Removal and disposal of PCBs-containing building materials • Removal and disposal of PCBs residuals in sewer lines • Remediation of contaminated soil or sediment from public rights-of-way, storm water conveyances, and private property • Construct, operate, and maintain facilities/units	Impacts: • Short-term noise related to construction activities and use of heavy equipment for all projects involving construction and removal and hauling of equipment/material from buildings	PS	On Land Mitigation measures include: • Compliance with local noise ordinances (typical standards include blackouts prohibiting use of heavy equipment on Sundays, early morning hours and evenings all week, and on holidays) • Use of noise dampening material or barriers around equipment • Engine and pneumatic exhaust controls • Locating equipment as far as practical from noise-sensitive areas • Selecting haul routes that affect the lowest number of people	LTSM

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
to intercept, divert, and treat stormwater • Strategically route stormwater to POTWs <u>In-Bay</u> • Dredge PCBs-contaminated sediment with off-site disposal • Dredge (partial) and cap remainder in situ	<u>Impacts:</u> • Use of heavy equipment during dredging and hauling activities could cause short-term, localized noise	PS	<u>In-Bay</u> Mitigation measures include: • Compliance with local noise ordinances (typical standards include blackouts prohibiting use of heavy equipment on Sundays, early morning hours and evenings all week, and on holidays) • Use of noise dampening material or barriers around equipment • Engine and pneumatic exhaust controls • Locating equipment as far as practical from noise-sensitive areas • Selecting haul routes that affect the lowest number of people	LTSM
11. NOISE 11-D Substantial temporary or periodic increase in ambient noise in vicinity of project				
<u>On Land</u> • Removal and disposal of PCBs-containing equipment • Removal and disposal of PCBs-containing building materials • Removal and disposal of PCBs residuals in sewer lines • Remediation of contaminated soil or	Impacts: • Short-term, intermittent noise from use of heavy equipment during construction or remediation activities	PS	<u>On Land</u> Mitigation measures include: • Compliance with local noise ordinances (typical standards include blackouts prohibiting use of heavy equipment on Sundays, early morning hours and evenings all week, and on holidays) • Use of noise dampening material or barriers around equipment • Engine and pneumatic exhaust controls • Locating equipment as far as practical from noise-sensitive areas	LTSM

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
sediment from public rights-of-way, storm water conveyances, and private property • Construct, operate, and maintain facilities/units to intercept, divert, and treat storm water • Strategically Route Stormwater to POTWs <u>In-Bay</u> • Dredge contaminated sediment (all methods)			• Selecting haul routes that affect the lowest number of people • Compliance with work window restrictions <u>In-Bay</u> Mitigation measures include: • Compliance with local noise ordinances (typical standards include blackouts prohibiting use of heavy equipment on Sundays, early morning hours and evenings all week, and on holidays) • Use of noise dampening material or barriers around equipment • Engine and pneumatic exhaust controls • Locating equipment as far as practical from noise-sensitive areas	
16. UTILITIES AND SERVICE SYSTEMS 16-B Require or result in construction of new water or wastewater treatment facilities or expansion of facilities, construction of which could cause significant environmental effects				
<u>On-Land</u> • Removal and disposal of PCBs residuals in sewer lines • Construct facilities/units to intercept, divert, and treat stormwater	<u>Impacts:</u> • Projects to remove PCBs residuals from sewer lines may, in a limited number of cases, include replacement	PS	<u>On Land</u> Mitigation measures include: • Compliance with existing, applicable zoning, land-use, permitting requirements of all agencies (local, state, and federal) • Use of standard construction BMPs to avoid and minimize environmental impacts	LTSM

Reasonably Foreseeable Compliance Measures Evaluated	Environmental Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance With Mitigation
• Strategically route stormwater to POTWs	of some sections of the line • Some dischargers may strategically select sites where feasible to intercept and divert storm water to POTWs. Construction is likely to be limited to interception devices and pipelines			
16. Utilities and Service Systems 16-C Require or result in construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects				
<u>On Land</u> • Construction of facilities to intercept and divert urban stormwater runoff • Strategically route stormwater to POTWs	<u>Impacts:</u> • Impacts related to construction activities as described above	PS	<u>On Land</u> Mitigation measures include: • Compliance with existing, applicable zoning, land-use, permitting requirements of all agencies (local, state, and federal) • Use of standard construction BMPs to avoid and minimize environmental impacts	LTSM

Discussion of Environmental Impacts and Mitigation by Checklist Category
In this section, we present the rationale for the ratings of environmental impacts listed in the CEQA checklist (Appendix A) and Table 24-Summary of Potentially Significant Environmental Impacts and Mitigation Measures
. The following sections are numbered to match the checklist.

1. Aesthetics

There are no known or reasonably foreseeable impacts to aesthetic values as a result of compliance with the proposed Basin Plan amendment. Significant impacts to aesthetics would involve introduction of new elements that are substantially out of character with existing land uses or would obscure or alter scenic vistas or occur within a designated scenic area. There are no impacts of this type associated with the reasonably foreseeable means of compliance with the Basin Plan amendment as projects will be implemented in urban industrial areas. Some projects may occur adjacent to the San Francisco Bay. Construction impacts associated with activities along the shoreline may include sheet pile installation, removal of vegetation, sediment stabilization or pipeline installation; these impacts are all short-term activities with no long-term impacts to aesthetic resources.

2. Agricultural Resources

There are no known or reasonably foreseeable impacts to agricultural resources as a result of compliance with the proposed Basin Plan amendment. Significant impacts would occur if a project substantially affected agricultural lands or production processes. The reasonably foreseeable methods of compliance with Basin Plan amendment will be implemented in urban, industrial areas where there are essentially no agricultural land uses.

3. Air Quality

The impacts of a project to air quality in the Bay Area are assessed in relation to guidelines set by the Bay Area Air Quality Management District (BAAQMD 1999) as well as in relation to federal standards established by the Clean Air Act. The air pollutants of greatest concern in the Bay area include ozone and inhalable particulate matter less than 10 microns in diameter (PM_{10}) The San Francisco Bay Area Air Basin is currently classified as a nonattainment area for both the state and federal ozone standards, and for state PM_{10} standards.

In the case of implementation activities related to the PCBs TMDL, emissions of air pollutants are primarily associated with construction activities. Given the temporal aspect of such projects, all reasonably foreseeable impacts would be short-term. Construction activities emissions are included in the emission inventory that is the basis for regional air quality plans and are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area (BAAQMD 1999). Even if emissions are greater than anticipated they would be mitigated as discussed below.

The other pollutant of greatest concern related to construction and possible remediation work is fine particulate matter (<PM_{10}), which is related to activities such as excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment emissions. Construction-related emissions of PM_{10} vary depending on a variety of factors including the level of activity, specific operations taking placing, equipment being used, and local soil and weather conditions. Although particulate matter is closely associated with diesel exhaust, it is also formed from tire wear and road dust. However, despite the variability of these influences, the BAAQMD has identified numerous BMPs that are feasible control measures to significantly reduce emissions

of PM_{10} from construction projects. In addition, as of mid-2006, California law requires that all highway diesel fuel sold in the state be Ultra Low Sulfur Diesel (ULSD), which is compatible with existing, in-use vehicles. This formulation also contributes to significant reductions in particulate matter emissions. We anticipate use of this fuel and implementation of BMPs would be required as necessary for projects associated with implementation of the PCBs TMDL. Specific areas of impact and mitigation are described below.

Implementation measures for the PCBs TMDL could lead to projects or other activities with impacts to air quality in the following area as listed on the CEQA checklist:

Would the project:

Impact 3-B: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

These impacts are rated as potentially significant, but less than significant with mitigation incorporated.

<u>On Land</u>

Impacts: Implementation measures for the PCBs TMDL may include removal of PCB-containing equipment from buildings or other industrial facilities and disposal at appropriate offsite locations. Remediation projects may also be implemented to remove contaminated soils or sediments from public rights-of-way, private property, and sewer lines. Such projects would involve the use of heavy equipment during remediation or hauling and disposal of materials.

Some dischargers responsible for urban runoff/stormwater may decide to conduct additional street cleaning, including street sweeping and washing, or installation of new filtration systems for storm drains. Activities of this type could require more frequent operation of street cleaning machinery than under current maintenance schedules. This increase in maintenance could impact air quality on a short-term, periodic basis. Impacts from construction of other possible control measures, e.g., facilities/units to intercept, divert and treat stormwater may also occur but are expected to be short term in nature and the number and locations of such projects would be speculative, as the feasibility and specific nature of these projects will be evaluated by dischargers through pilot studies.

In addition, in a limited number of instances, dischargers may opt to construct facilities to divert stormwater to municipal wastewater treatment facilities. This is only likely to be undertaken where strategically feasible, such as in locations where municipal wastewater treatment facilities are proximate to areas with significant amounts of PCBs in urban runoff. These efforts would involve construction of pipelines connecting the storm collection system to municipal wastewater treatment facilities.

The implementation measures for the PCBs TMDL described above could contribute to two main types of air quality impacts: increased input of PM_{10} (as described above) from dust (in construction areas) and diesel exhaust emissions as well as an increase in vehicle exhaust emissions that contain air pollutants known to contribute to photo-chemical smog, i.e., ozone, cause annoyance odors, and potentially irritate respiratory systems (particularly in sensitive individuals). The impacts would result from use of heavy equipment during construction and construction activities and from increases in street cleaning, as well. Construction-related impacts would be short-term; impacts associated with increases in street cleaning would also be short-term and minimal, but would occur on a regular basis.

Mitigation: Use of standard BMPs should reduce these impacts to less than significant levels. For particulate matter, the BMPs include, but are not limited to: spraying of construction and staging areas to control dust; covering all hauling trucks and maintaining adequate freeboard; using electric equipment when possible; ceasing construction activities during periods of high wind or episodes of poor air quality as identified by BAAQMD; using covered dust chutes for removal of building materials or equipment; developing and implementing soil management plans at all construction sites, and ongoing testing and monitoring to detect and eliminate airborne release of PCBs during remediation activities. Measures to mitigate vehicle exhaust emissions include use of construction and maintenance equipment with lower emission engines, use of soot traps or diesel particulate filters, and use of emulsified or low sulfur diesel fuel. Over time, vacuum-assisted street sweepers could be incorporated into municipal maintenance vehicle fleets, which generate less dust during operation than conventional street sweeping equipment.

In-Bay

Impacts: Remediation of PCBs-contaminated hot spots located along the margins of the Bay may result in short term impacts to air quality. These activities may involve the use of diesel-powered dredging equipment and barges to transport the dredged material. On a localized, short-term basis, this equipment could contribute particulate matter as well as some of the ozone precursors. In addition, disposal of material from remediation of in-Bay contaminated hot spots would most likely be disposed of at upland facilities. Upland disposal could also result in increased use of diesel-fueled trucks, which would increase the release of exhaust emissions with particulates (including PM_{10}) and the constituents of photo-chemical smog.

Mitigation: It is anticipated that standard BMPs would reduce these impacts to less than significant levels. Measures to mitigate vehicle exhaust and equipment emissions include use of construction and maintenance equipment with lower emission engines, use of soot traps or diesel particulate filters, and use of emulsified or low sulfur diesel fuel. For large-scale dredging project near-shore, use of electric-powered excavating equipment and barges would significantly reduce equipment and vehicle emissions of both particulates and pollutants without a consequent loss of performance.

4. Biological Resources

Impacts to biological resources would be considered significant if the project caused substantial adverse effects directly or indirectly on a special status species (e.g., listed threatened or endangered) or candidate species. Similarly, substantial adverse impacts to sensitive natural communities, including wetlands, are considered significant impacts due to the potential presence of endangered species. Conflicts with various resource policies and plans, such as Natural Community Conservation Plans, Habitat Conservation Plans, or local tree protection ordinances, if substantial, could also be considered significant impacts.

Implementation of the TMDL for PCBs could lead to projects or activities with impacts to biological resources in three areas as listed on the CEQA checklist:

Would the project:

Impact 4-A Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local, regional

plans, policies, regulations or by California Department of Fish and Game or U.S. Fish and Wildlife Service.

Impact 4-B Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.

Impact 4-C Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including. but not limited to, marsh, vernal pool, coastal, etc) through direct removal, filling, hydrological interruption, or other means.

These impacts are rated potentially significant for in-Bay projects as explained below. There are no known reasonably foreseeable impacts to biological resources from on-land projects; this rating is also explained below.

On Land

There are no reasonably foreseeable impacts to biological resources from implementation of the PCBs TMDL at on-land sites. Although removal of soil and sediment could occur as part of land-based implementation activities, PCBs are normally found in highly urbanized, industrial areas where the presence of sensitive native species and habitats such as wetlands is improbable. As a result, removal of soil and sediment, PCBs-contaminated equipment and building materials, or other remediation activities at on-land sites are unlikely to disturb any rare or sensitive species or habitats. Implementation measures developed to intercept, and treat stormwater or to divert, urban stormwater runoff to municipal wastewater treatment systems are only likely to occur at strategic locations in highly urbanized areas where urban runoff is identified as a source of PCBs or wastewater treatment facilities are in close proximity, which is most likely to be in urban industrial areas. Given these factors, on-land projects have no reasonably foreseeable impacts to biological resources.

In-Bay

Impacts: Implementation of the PCBs TMDL at in-Bay locations could include remediation of sites with PCBs-contaminated sediments. One approach to site remediation dredging is to remove contaminated sediment with offsite disposal or partial dredging combined with capping the remainder in-situ. In-Bay projects to remove PCBs-contaminated sediment would occur in near-shore areas, in sub-tidal or intertidal habitats or in some cases may include sensitive tidal marsh habitat. The size of these projects varies but is generally limited to less than 10 acres. Benthic macroinvertebrate community impacts in sub-tidal or intertidal habitats are generally short-lived. These communities are not considered to be a sensitive natural community. In marine environments, recolonization of stable benthic communities occurs in 3-5 years. In the San Francisco Bay, benthic communities are subject to perturbations due to the effects of salinity changes, wind-wave action and other Bay phenomenon. Changes in community structure occur naturally and therefore remedial dredging small areas of the Bay is not considered a significant environmental impact on biological resources. In addition, one of the reasons some of these sites are on the list of contaminated hot spots, other than because of PCBs, is because toxicity was identified as a concern for the benthic community.

Dredging for remediation of in-Bay contaminated sediment could cause potential impacts to sensitive anadromous fish species such as sturgeon and coho salmon. Impacts are also possible from removal of tidal marsh vegetation and disrupting waterfowl and other wildlife,

including endangered species that inhabit such ecosystems through short-term noise and disturbance caused by the presence of humans.

Mitigation: Use of BMPs, and compliance with resource agency requirements, including USFWS, NOAA/NMFS and CDFG, as part of formal or informal consultations required prior to issuance of Clean Water Act 401 water quality certifications by the Water Board and 404 dredging and filling permits should mitigate potentially significant impacts related to dredging of sediment contaminated by PCBs to less than significant levels. Specific mitigation measures include adherence to established work windows to time of dredging activities to avoid key seasonal activity of anadromous fish and bird species that inhabit near shore areas either seasonally or year round; use of electric dredge equipment; use of environmental (closed) clamshell buckets on dredges; and noise dampening material on equipment. Electric-powered dredging equipment has been used for San Francisco Bay dredging projects, such as in the Oakland Harbor. However, this technology is only feasible if the amount of material to be removed is very large and the site is close to shore. Projects that disrupt tidal marshes would be required to mitigate for the temporal and any long-term potential losses.

Any or all of these mitigation measures could be imposed on projects through the regulatory authority of the Water Board, under the Clean Water Act 401 water quality certification requirements. Therefore impacts to biological resources from in-Bay dredging projects would be mitigated to less than significant levels with mitigation incorporated.

5. Cultural Resources

Cultural resources encompass archeological, traditional, and built environment resources including, buildings, other structures, objects, districts, and sites. Significant impacts to cultural resources would occur if a project caused substantial adverse changes or destroyed cultural, historical, or archeological resources or disturbed human remains.

Implementation of the PCBs TMDL could lead to projects or activities with impacts to cultural resources in two areas as listed on the CEQA checklist:

Would the project:

Impact 5-B Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.

Impact 5-D Disturb any human remains, including those interred outside of formal cemeteries.

These impacts are rated as less than significant as explained below.

<u>On Land</u>

Impacts: Implementation measures for the PCBs TMDL could include construction of facilities/units to intercept, divert and treat urban stormwater runoff; strategic routing of stormwater to POTWs, and removal of soil and sediment from PCBs-contaminated sites. Grading and excavation would affect near-surface soils in previously disturbed soils or artificial fill. Activities would not affect native soil or areas of high archeological sensitivity. Therefore these impacts are rated as less than significant.

<u>In Bay</u>

Impacts: Implementation of the PCBs TMDL could include dredging with offsite disposal and dredging combined with capping the remainder in-situ at sites identified as contaminated by PCBs. Such activities are most likely to be located in Bay-margin or near-shore areas adjacent to former industrial areas. It is possible, though unlikely, that dredging activities to remove PCBs-contaminated sediment in near-shore locations could uncover previously unmapped cultural resources, such as archeological sites.

6. Geology and Soils

Significant impacts to geology and soils would occur if a project exposed people or structures to potential, substantial adverse effects related to rupture of a known earthquake fault, other seismic events, or landslides. Significant impacts would also occur is a project caused substantial erosion or was located in areas with unsuitable soils or landslide-prone conditions. There are no known or reasonably foreseeable impacts to geology and soils as a result of reasonably feasible compliance measures to implement the PCBs TMDL. It is unlikely that agencies or other entities responsible for implementing this TMDL would select projects or project locations that would place people or structures at risk from seismic hazards or landslides or would develop projects requiring construction at sites with unsuitable soils.

7. Hazards and Hazardous Materials

This category refers to chemicals that have been discharged to the environment that may adversely impact the environment or human health and safety. Soil and groundwater impacted by such chemicals are also included classification. Significant impacts would occur if a project led to increased hazards to the public or environment from transport, handling, or emissions of such materials or if projects are located near airports and listed hazardous materials sites.

Implementation of the TMDL for PCBs could lead to projects or activities with impacts related to hazards and hazardous materials in the following three areas as listed on the CEQA checklist:

Would the project:

Impact 7-B Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Impact 7-C Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Impact 7-D Be located on a site with is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

These impacts are rated as less than significant as explained below.

<u>On Land</u>

Impacts: Actions to implement the PCBs TMDL would include handling and transport of equipment, building materials, soil and sediment containing PCBs or other potentially hazardous material. To protect people and the environment from potential impacts from PCBs-containing material they would be handled, transported, and stored in accordance with applicable laws and regulations.

Project workers and supervisors are required to comply with applicable Occupational of Health and Safety Administration (OSHA) training requirements for site clean-up personnel. In addition, site-specific health and safety plans would be prepared in accordance with Title 8, California Code of Regulations, §5L92 and Title 29, § 1910.120 of the Federal Code of Regulations, which govern site clean-up.

In-Bay

Impacts: There are also potential remediation projects at numerous sites within the Bay that have been identified as 'hot-spots' containing PCBs-contaminated sediment. These are also under the regulatory oversight of the Water Board, ACOE, U.S. EPA, DTSC, and BCDC. These sites were listed as toxic hot spots; the sediments are contaminated, but the available data indicate they are not at hazardous levels. Most of the available data for PCBs contaminant levels in bay sediments indicate levels below the hazardous waste designation level of >50 ppm. Many of these sites have other contaminants identified as co-occurring in the sediment; these other contaminants are also generally at levels that are not considered hazardous. Additional site investigation activities are necessary to better understand some of these sites, and feasibility studies would also be required, thus analyzing for the potential that some hazardous materials may be associated with these sites is speculative at this time.

To protect people and the environment from potential impacts from PCBs-contaminated sediment, the sediment would be handled, transported, and stored in accordance with applicable laws and regulations.

Project workers and supervisors are required to comply with applicable Occupational of Health and Safety Administration (OSHA) training requirements for site clean-up personnel. In addition, site-specific health and safety plans would be prepared in accordance with Title 8, California Code of Regulations, §5L92 and Title 29, § 1910.120 of the Federal Code of Regulations, which govern site clean-up.

8. Hydrology and Water Quality

Significant impacts to hydrology and water quality would occur if a project substantially alters existing drainage patterns, alters the course of a river or steam, violates water quality standards, or creates or contributes to runoff that would exceed local stormwater drainage systems. Significant impacts would also occur if a project placed housing or other structures within the 100-year flood plain, or exposed people or structures to significant risks from flooding, seiches, or tsunamis. There are no known, reasonably foreseeable impacts to hydrology and water quality from the PCBs TMDL as explained below.

Would the project:

Impact 8 – B Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?

On Land

Implementation of the PCBs TMDL may include remediation projects involving removal of PCBs-contaminated soil and sediment. These projects could include activities such as excavation and backfill. They would not result in permanent changes to drainage patterns. In

addition, because PCBs-contamination is most closely associated with their use in equipment such as transformers and building materials in older, highly urbanized, industrial areas, they are unlikely to occur in areas where hydrological changes or proximity to streams is of concern. Furthermore, the purpose of the PCBs TMDL and implementation plan is to attain water quality standards.

In-Bay

Remediation projects to remove PCBs-contaminated sediment through dredging are on-going in a number of locations along the Bay margin; some sites are the subject of feasibility studies and others are at different stages of remediation. These projects are being undertaken under regulatory programs other than the PCBs TMDL and are not required by this TMDL. To the extent that the existing pace of cleanup is affected by this TMDL, it is anticipated that any new remediation activities for sites not currently being worked on could result in potentially significant impacts to water quality due to resuspension of contaminated sediments in the water column.

Mitigation: Projects to remediate PCBs-contaminated sediment in hot spot sites through dredging or partial dredging and capping, would require a water quality certification under Section 401 of the Clean Water Act, or waste discharge requirements issued by the Water Board and permit conditions to ensure that there are no violations of water quality. Examples of mitigation measures include the use of temporary sheet pile enclosures to prevent tidal action or deployment of silt curtains to protect water quality. In addition decant water resulting from hydraulic dredging activities would need to be treated prior to discharge into the environment or properly disposed of. Potentially localized short term impacts would be mitigated by these actions. In addition, these types of remediation activities are expected to result in improved water quality in the long-term. Therefore, impacts to hydrology and water quality from in-Bay dredging projects would be mitigated to less than significant levels with mitigation incorporated.

9. Land Use and Planning

Significant impacts to land use and planning would occur if a project physically divided a community, conflicted with a land use plan, policy or regulation, or caused conflict with a habitat conservation plan. There are no projects related to the PCBs TMDL that would be of a type or scale to cause any impacts in this category. Projects anticipated by the PCBs TMDL implementation plan would occur in urban or industrial areas or on the Bay margin and are not expected to result in substantial changes to established communities or land use patterns. Impacts to land use and planning are expected to be less than significant. Pilot studies to evaluate stormwater control measures, such as use of detention basins, will be conducted by land use agencies, i.e., municipalities and counties, and compatibility with land use will be evaluated as part of those pilot/feasibility studies. It is not reasonably foreseeable that large scale implementation of stormwater detention basins will occur as a result of this TMDL as it not feasible in a densely populated urban areas. The locations of such control measures are not specifically required by this project, and therefore, analyzing the impacts would be speculative at this time.

10. Mineral Resources

Significant impacts to mineral resources would occur if a project resulted in the loss of a mineral resource of value locally, regionally, or statewide. There are no projects related to the PCBs TMDL that would be of a type or scale to cause any impacts in this category. None of the PCBs-contaminated sites are known to occur on land identified as a mineral resource of local,

regional, or statewide significance. There are no known or reasonably foreseeable impacts to mineral resources as a result of compliance with the PCBs TMDL.

11. Noise

Significant impacts from noise would occur if a project exposed people to noise or groundborne vibration in excess of excess of established standards in a local general plan or noise ordinance or resulted in substantial permanent increase to ambient noise levels. Significant impacts can also occur if a project causes substantial temporary or periodic increases in noise or if a project is located in the vicinity of an airport and would expose people residing or working in the project area to excessive noise levels.

Reasonably foreseeable means of compliance with the PCBs TMDL at on land locations include projects for removal and disposal of PCBs-containing equipment and building materials; remediation of PCBs-contaminated soil or sediment in public rights-of-way; storm water conveyances; and private property; increased street cleaning (sweeping and washing); storm drain and inlet maintenance above what is currently done. Other possible means of compliance include projects to construct, operate, and maintain facilities/units to intercept, divert, and treat stormwater (e.g., pipelines, detention basins, underground sand filters). For in-Bay control of sources of PCBs, potential means of compliance include projects to dredge PCBs-contaminated sediment. These projects could employ a variety of methods including dredging combined with capping. A small percentage of material removed by these projects may require disposal at approve facilities at upland sites. Noise impacts related to the TMDL are primarily short-term and related to construction activities.

According to the Federal Transit Administration's guidelines for evaluation of noise and groundborne vibration associated with construction activities, assessments of noise and vibration during construction are dependent upon a number of factors. These include proximity to sensitive receptors (schools, museums, some types of parks), characteristics of the soil and rock substrate to transmit vibration, sound-proofing characteristics of buildings, and the degree of noise already present in an area. It is difficult to determine the extent of noise impacts since site-specific factors are not currently known. In addition, impacts also vary based on the type of equipment used and the number of pieces of equipment operated simultaneously. The discussion below is, therefore, general in nature. However, with implementation of industry standard mitigation, we anticipate that all noise impacts could be mitigated to less than significant levels.

Implementation of the PCBs TMDL could lead to projects or activities with impacts related to noise in three areas as listed on the CEQA checklist:

Would the project result in:

Impact 11-A Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact 11-B Exposure of persons to or generation of excessive groundborne vibration or groundborne noise?

Impact 11-D A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impacts 11-A and 11-D are rated as potentially significant, but less than significant with mitigation incorporated as explained below. Impact 11-B is less than significant and is also explained below.

On Land:

Impacts: Projects involving remediation of PCBs-contaminated sites, including removal of equipment or building materials; construction of facilities to treat or intercept and divert stormwater; and clean PCBs-contaminated sewer lines could cause short-term, localized noise impacts.

Mitigation: Individual projects with noise impacts would be subject to applicable local permitting requirements and noise ordinances. Local agencies require implementation of standard construction BMPs to reduce noise impacts, and include, but are not limited to practices such as restrictions on operating hours and use buffer materials around/on machinery. In some cases, use of hydraulic or electric equipment could be substituted for noisier diesel equipment. Newer equipment, which emits less noise, could also be used. For particularly loud or lengthy activities, temporary noise buffers could be installed.

In-Bay:

Impacts: Dredging activities to remove PCBs-contaminated sediment from near shore or Bay margin locations could produce potentially significant noise-related impacts because they may involve the use of sheet pile to dewater work areas. Installation of sheet pile may produce short-term, potentially significant noise impacts.

Mitigation: Individual projects with noise impacts would be subject to applicable local permitting requirements and noise ordinances. Local agencies require implementation of standard construction BMPs to reduce noise impacts, such as restrictions on operating hours, for example, typical standards include blackouts prohibiting use of heavy equipment on Sundays, early mornings and evenings all week, and on holidays). Buffer materials around/on machinery and engine and pneumatic exhaust controls could be used to control noise. In some cases, use of electric powered dredging equipment may be possible as a substitute for noisier diesel machinery.

12. Population and Housing

Significant impacts to population and housing would occur if a project substantially encouraged population growth, displaced substantial numbers of people from existing housing necessitating construction of replacement housing elsewhere. There are no projects related to the PCBs TMDL that would involve construction or removal of housing or bring large numbers of people to the Bay Area. There are no known or reasonably foreseeable impacts to population and housing as a result of compliance with the PCBs TMDL.

13. Public Services

Significant impacts to public services would occur if a project resulted in substantial physical impacts as a result of requirements for increased public services such as police, fire protection, schools, or other public facilities. There are no projects related to the PCBs TMDL of a type that would increase the need for police or fire services. There are no known impacts to public services as a result of the PCBs TMDL.

14. Recreation

Significant impacts to recreation would occur if a project increased the use of existing park facilities such that physical impacts occurred of if a project included construction or expansion of park facilities leading to physical impacts. Actions to implement the PCBs TMDL would not affect use of parks or other recreational facilities or lead to physical impacts to them. There are no known impacts to recreation as a result of the PCBs TMDL.

15. Transportation and Traffic

Significant impacts to transportation and traffic would occur if a project caused a substantial increase in traffic in relation to existing traffic load/capacity of the existing street system, exceeded established level of service standards, resulted in change in air traffic patterns, lead to increases in road-related hazards, resulted in inadequate emergency access or parking.

Assessment of transportation and traffic impacts normally requires extensive study of the project area, existing traffic patterns, loads, and level of service standards. In this programmatic review, such detailed analyses are not possible, since specific projects have not yet been developed. However, Water Board staff anticipates that some reasonably foreseeable means of compliance with the PCBs TMDL could result in impacts to as identified below.

Implementation of the PCBs TMDL could lead to projects or activities with impacts to transportation and traffic in two areas as listed on the CEQA checklist:

Impact 15-A Cause an increase in traffic substantial in relation to the existing traffic load and capacity of the street system.

Impact 15-B Exceed either individually or cumulatively a level of service standard established by county congestion management agency for designated roads and highways.

These impacts are rated as less than significant as explained below.

<u>On Land</u>

Impacts: Projects to implement the TMDL could include construction of facilities to treat stormwater or to strategically divert stormwater to municipal wastewater treatment facilities for treatment. It could also result in projects for remediation or removal of PCBs-containing equipment and building materials. Remediation projects could be developed to remove soils and sediments from public rights of way, wastewater conveyances (in some limited locations), and private property. Finally, some dischargers may increase the frequency of maintenance of storm drain inlets and filtration systems as well as street cleaning (sweeping and washing).

Movement of personnel to and from work sites and hauling of equipment and materials to or from such construction or remediation sites as well as hauling of contaminated in-Bay sediments to upland disposal facilities, could potentially result in short-term impacts to traffic. Increases in the frequency of street cleaning and maintenance activities at storm drain inlets or filters could result in a minor increase in traffic.

The location, routes, and scale of such projects and activities are currently unknown and thus the impacts of any individual project would be speculative. However, standard industry practices require a traffic management plan, which includes measures such as strategic route selection and carefully planned timing for haul-truck traffic, traffic impacts would be minimized. Other

traffic, such as from street cleaning, would add only very small volumes of traffic that would not affect levels of service, roadway networks, or parking capacity. We anticipate that impacts to traffic and transportation would be less than significant levels.

In-Bay

As described above, site remediation at in-Bay locations may produce some material that does not meet new standards for in-Bay disposal. In that case, this material is most likely to be transported to appropriate on-land sites, possibly increasing traffic. However, given the small percentage of material likely to be involved and the ability to control timing and route to minimize effects, this is impacts is considered less than significant.

16. Utilities and Service Systems

Significant impacts to utilities and service systems would occur if a project exceeded wastewater treatment standards, required construction of new water or wastewater treatment facilities, new or expanded storm water drainage facilities, or a project's water needs exceeded existing resources or entitlements. Significant impacts would also occur if a project was not served by a landfill with sufficient capacity or the project failed to comply with federal, state, or local regulations for solid waste.

Implementation of the PCBs TMDL could lead to projects or activities with impacts to utilities and service systems in three areas as listed on the CEQA checklist:

Would the project:

Impact 16-B Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact 16-C Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

These impacts are rated as potentially significant, but less than significant with mitigation incorporated as explained below.

On Land

Impacts: Projects to implement the PCBs TMDL could include construction of new facilities to intercept or treat stormwater or to divert stormwater runoff to municipal wastewater facilities for treatment. While it is not anticipated that retrofits to stormwater drainage systems, construction of new stormwater treatment control measures, or diversion to POTWs, would be significant, construction of any of these facilities could be viewed as potentially significant. The number and location of projects of this type is currently unknown. Pilot studies to evaluate stormwater control measures will be conducted by stormwater management agencies. In addition, the implementation plan calls for pilot studies to evaluate the feasibility of routing stormwater to POTWs, and this would be conducted by individual stormwater agencies or municipal wastewater districts.

Mitigation: Mitigation for these projects is linked to careful site selection. The implementation plan notes that interception and diversion of stormwater is an option that could be employed

where strategically feasible, such as areas where stormwater systems and municipal treatment facilities or conveyances are close together. The benefits of this are lowered cost and lowered potential environmental impacts.

The specific mitigation measures could include, but are not limited to, pre-construction BMPS, such as appropriate site selection and environmentally-friendly design; during construction, the use of standard construction BMPs appropriate to the conditions at a site; and for the project as a whole, measures appropriate to offset impacts, such as habitat restoration or enhancement, contributions to mitigation banks, etc.

In-Bay

This category is not applicable to in-Bay projects.

12.7. Mandatory Findings of Significance

The results of this analysis demonstrate that the means of compliance with TMDL for PCBs in San Francisco Bay and its Implementation Plan will not have any reasonably foreseeable potentially significant impacts on the environment that cannot be mitigated to less than significant levels.

With implementation of mitigation measures identified in the environmental checklist and required by federal, state, and local laws and regulations, impacts having a potential to degrade the environment would be reduced to less than significant levels.

Pursuant to Section 13360 of the Water Code, the Water Board cannot mandate which compliance measures responsible agencies may choose to adopt or which mitigation measures they would employ for projects to implement the PCBs TMDL that do have potentially significant impacts. However, the Water Board anticipates that appropriate mitigation measures, which are already widely in use and considered consistent with industry standards, be applied as necessary, in order to avoid and reduce as well as mitigate potential environmental impacts. These measures should ensure that impacts are reduced to less than significant levels. Since the decision to perform these measures is strictly within the responsibility and jurisdiction of the individual implementing agencies, such measures can and should be adopted by these agencies (Title 14, California Code of Regulations, Section 15091 (a) (2)).

12.8. Cumulative Impacts and Other Analyses

Cumulative Impact Analysis

This section provides an analysis of the significant cumulative impacts of the proposed Basin Plan amendment (CEQA Guidelines Section 15130). Cumulative impacts refers to “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.”

The cumulative impact that results from several closely related projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present and reasonably foreseeable probable future projects. In this case, these are the impacts from non-TMDL required municipal and private projects to reduce PCBs that would occur in the watershed during the period of implementation of the TMDL.

Approach to Cumulative Impact Analysis

The areas of cumulative impacts analyzed in this section include: 1) the program level cumulative impacts and 2) the project level cumulative impacts. On the program level, the PCBs TMDL is one of several TMDLs planned or already adopted to address impairment in the San Francisco Bay. Other adopted or planned future TMDLs for San Francisco are considered in this program cumulative analysis. On the project level, the full environmental analysis of individual projects is the purview of the implementing counties/municipalities, POTWs or other agencies with approval authority. The cumulative impact analysis included here entails consideration of other stormwater control measures implemented in the past and present, planned future upgrades of wastewater treatment plants, and past, present and future cleanup actions for in-Bay contaminated hot spots.

Adoption of the Basin Plan amendment is intended to facilitate implementation of the TMDL. However the requirements identified in the TMDL implementation plan are generally implemented through NPDES permits, waste discharge requirements or other regulatory tools. Agencies other than the Water Board will likely use regulatory and non-regulatory tools in implementing the PCBs TMDL. The Basin Plan amendment would be cumulatively beneficial to the environment in terms of some resource areas. Conceptually, the impacts associated with improving water quality through the TMDL, if occurring with other construction projects, could contribute to temporary cumulative effects to air quality, noise or traffic impacts that would not occur with only one project.

Overall the cumulative effect is to provide an environmental benefit to the San Francisco Bay and achieve compliance with existing adopted water quality standards established by the U.S. EPA and this Water Board.

Program Cumulative Impacts

The Water Board has adopted one TMDL for San Francisco Bay. The Mercury TMDL for San Francisco Bay (adopted by the Water Board on August 9, 2006 and by the State Board on July 17, 2007) was developed due to impairments from mercury. Many of the reasonably foreseeable methods of compliance for one TMDL are the same as or similar to those that will be used to address other pollutants through the implementation of other TMDLs. In terms of stormwater, best management practices and control measures that are applicable to PCBs are likely to be similar measures to those being implemented for mercury in the urban watershed. On-land control measures for mercury also target mine sites in the watershed and would therefore be conducted in addition to on-land control measures for PCBs. The potential implementation strategies discussed in this document for the PCBs TMDL are likely relevant to the implementation of other TMDLs for the San Francisco Bay.

In addition, TMDLs for selenium, legacy pesticides, and dioxins other than dioxin-like PCBs, are in development for the San Francisco Bay and a TMDL for pathogens is in development for Richardson Bay.

Project Cumulative Impacts

Specific TMDL projects must be environmentally evaluated and cumulative impacts considered as the implementing municipality or agency designs and sites the project. However, as examples, TMDL projects and other construction activities may result in cumulative effects.

With regards to cleanup of PCB-contaminated hot spots, the TMDL requires only the collection of information about in-Bay contaminated hot spots; it does not require other actions at these sites and does not set cleanup standards to be achieved at these sites. Investigation and cleanup of contaminated in-Bay hot spots are already underway at many sites in the Bay without the adoption of the TMDL. The one part per billion sediment goal is not a cleanup goal or regulatory standard. Thus, the one part per billion sediment goal will not require a large-scale, bay-wide mass removal of contaminated sediments from in-Bay hot spots. Table 23 lists the sites where cleanup of contaminated in-Bay sediments sites have occurred in the past, those that are in the process of being addressed, and sites where some studies may have been completed but no plans currently exist for any actions to be taken. Since the TMDL does not call for specific actions to be taken, and it is unclear whether actions will be taken in the future at sites where work has yet to be started, an evaluation of the cumulative environmental impacts is speculative. However, to the degree enough information may be available to provide a general response, they are provide below by subject category.

Air Quality

Implementation of the PCB TMDL Program may cause additional emissions of ozone precursors, $PM_{10,}$ and slightly elevated levels of carbon monoxide during construction activities. Emissions of PM_{10} resulting from implementation of TMDL compliance measures may exceed the thresholds established by the Bay Area Air Quality Management District (BAAQMD), and therefore the TMDL, in conjunction with all other construction activity, may contribute to the region's nonattainment status. However, the BAAQMD CEQA guidelines (BAAQMD 1999) state that cumulative impacts should be determined based on an individual project's consistency with applicable local General Plans and whether it would affect conformance of the General Plan with the regional air quality plan. The majority of the implementation measures under consideration as reasonably foreseeable means of compliance with the TMDL do not result in operational activities that would increase emissions in the areas due to an increase in population or vehicular traffic that would be sustained over time.

The control measure that might increase vehicular traffic is street sweeping/cleaning and storm drain maintenance. Past and current stormwater control measures focus on street sweeping and litter/debris removal, which results in vehicular traffic. This TMDL would increase the amount of vehicular traffic in an incidental fashion as the areas that would be subject to increased street sweeping are geographically small and limited to industrial, former industrial or small adjacent residential areas of municipalities and the cumulative impacts due to the individual impacts from this project when considered with the impacts from existing street sweeping activities are not anticipated to be significant.

The cumulative impacts to emissions of criteria pollutants and greenhouse gases are not anticipated to be significant. Cleanup actions taken at in-Bay contaminated hot spots in the past, present, or planned for the future involve dredging for PCB contaminated sediments in sites smaller than 10 acres and the list of contaminated hot spots has only 21 sites listed (Table 23). Removal actions conducted or planned at contaminated hot spots in the bay to-date range from a few thousand cubic yards to less than 100,000 cubic yards (Battelle 2005, U.S. Navy 2006b, U.S. Navy, 2007 and URS, 2002a). Construction activities at these sites may create short-term impacts. However, these activities do not occur simultaneously and are located in different parts of San Francisco Bay. It takes a number of years to evaluate and select a remedial alternative and thus it is unlikely that multiple projects will be occurring simultaneously. Therefore, the cumulative impact of these projects are not anticipated to be significant. In addition, these types

of construction activities are accounted for in the BAAQMD's emissions inventory in the regional air quality plan.

Biological Resources

Many of the compliance measures required under the TMDL are located in urban, industrial areas, do not impact sensitive habitats or biological resources. Where in-Bay contaminated hot spot cleanups conducted in the past have had the potential to impact biological resources, they have been required to mitigate by waste discharge requirements or 401 water quality certifications for the temporary impacts to sensitive wetlands and to monitor to ensure site vegetation and habitat restoration. In addition, mitigation measures for the protection of listed or endangered species are required where applicable. For example, construction is required to operate outside of nesting seasons and during migratory fish passage windows. These mitigation measures are required by any agency with approval authority for the cleanup actions.

The cumulative impacts to biological resources, i.e., destruction or damage to healthy benthic communities due to the excavation of PCBs-contaminated sediment from in-Bay PCB contaminated hot spots are not anticipated to be significant. Cleanup actions taken at in-Bay contaminated hot spots in the past have involved dredging for PCB contaminated sediments in sites smaller than 10 acres and the list of contaminated hot spots has only 21 sites listed (Table 23). Benthic macroinvertebrate community impacts in sub-tidal or intertidal habitats are generally short-lived; these communities have the ability to recolonize in a few years and are not considered to be a sensitive natural community. In San Francisco Bay, changes in benthic community structure occur naturally and therefore remedial dredging of small areas of the Bay is not considered a significant environmental impact on biological resources.

Cultural Resources

Implementation of the PCBs TMDL is not expected to contribute to a cumulative loss of cultural resources in the San Francisco Bay area. The activities related to past, present or future contol of external loading of PCBs to San Francisco Bay or remediation of In-Bay PCB-contaminated hot spots are not known, or likely, to contain cultural resources that would be lost or contribute to a cumulative loss or to impact historic districts in the Bay area.

Hazards and Hazardous Materials

Projects to cleanup on-land contamination and in-Bay contamination from PCBs in soils and sediment have been on-going in the San Francisco Bay area since the ban was enacted on PCBs. The greatest concern is in the safe transport and treatment, storage and disposal of hazardous materials. The implementation of the PCBs TMDL and all other cumulative projects must comply with the applicable laws and regulation pertaining to public safety in the transport, treatment, storage and disposal of hazardous materials. Thus, cumulative impacts would be less than significant. In addition, addressing sources of these contaminants in the environment has a cumulatively positive impact on the environment.

Hydrology and Water Quality

Implementation of the PCBs TMDL is expected to result in long-term improvement in water quality by reducing the potential for introduction of PCBs into San Francisco Bay. Other TMDLs are addressing other pollutants responsible for impairing water quality in San Francisco Bay, and thus, the cumulative impact of other program, as well as specific, projects constructed to meet Clean Water Act requirements, have resulted in long-term improvements in water quality and are expected to continue this improvement.

Land Use and Planning

The cumulative impacts to land use and planning and landfill capacity are not anticipated to be significant. Cleanup actions taken at in-Bay contaminated hot spots in the past have involved dredging for PCBs-contaminated sediments in sites smaller than 10 acres, and the list of contaminated hot spots has only 21 sites listed (Table 23). Cleanups conducted in the past or planned for the future for remediation of contaminated hot spots have occurred in the vicinity of industrial sites, brownfields, redevelopment sites and former military bases. There has been sufficient land available to process hydraulically dredged sediments prior to off-site disposal at landfills. There has also been adequate landfill capacity in the past, and in some cases, the dried sediment was clean enough to be used as alternate daily cover at landfills. In some cases, material was allowed to be managed upland at industrial sites or remain in-Bay, if properly managed, i.e., capped and isolated in place.

The TMDL does not envision the use of multiple, large detention basins capable of treating all Bay area stormwater. Much of the available land in the Bay Area has been developed for housing, industrial or commercial purposed. Stormwater management agencies are required to conduct pilot studies to evaluate the effectiveness of such control measures prior to strategically implementing them. Therefore, there is no basis to conclude that the proposed project would result in cumulative impacts to land use.

Noise

Construction activities associated with the implementation of the PCBs TMDL in combination with other noise-generating sources may exacerbate noise conditions in some locations, however, these impacts are short term in nature. Most noise is associated with traffic. Noise levels from construction activities, once completed, would return to current levels. Other activities, such as street sweeping, are expected to occur intermittently, over small geographical areas and be of short term duration. Overall, with mitigation, the activities resulting from the PCBs TMDL would not be expected to contribute considerably to a cumulative noise impact.

Transportation and Circulation

Implementation of control measures will create additional short terms increases during construction and maintenance. Implementation, after successful completion of the initial pilot studies, will likely be staggered over time and will occur in a few locations throughout the watershed. This decreases the likelihood that these projects cumulatively will cause significant impacts. The PCBs TMDL would require implementation of control measures and best management practices in locations within the watershed where existing land use indicates a historical use of PCBs. Most of the implementation measures, for example, additional street sweeping, are unlikely to create significant cumulative impacts.

Existing stormwater runoff permits currently require the installation of control measures at new developments or redevelopment projects. Some cities in the Bay area are actively requiring construction of stormwater control measures as part of new development projects. These control measures are generally smaller elements of much larger construction projects, residential subdivisions, commercial high rises, and these larger projects require a consideration of the permanent impacts to traffic and transportation. The stormwater control measures are thus inconsequential to these projects.

Overall, it is anticipated that implementation of the TMDL is unlikely to create cumulatively permanent, significant additions to traffic or transportation.

Utilities and Service Systems
Implementation of the PCBs TMDL would not increase water use. There is the possibility that strategically routing of stormwater to wastewater treatment plants would increase the amount of wastewater processed by these plants. However, the requirement of the TMDL is to evaluate the feasibility of this type of approach with an emphasis on using currently available existing capacity at municipal treatment plants. Therefore no significant additions to wastewater treatment plants are expected. The addition to the plant facilities would be limited to construction of pipelines or pumping capacity to route the stormwater. A few wastewater treatment plants in the Bay Area are planning upgrades to their facilities, improving their capacity or collection system rehabilitation. Some of these facilities have analyzed the environmental impacts of these activities and others are still in the planning stages. All these projects are anticipated to conform with their General Plans. It is not anticipated that construction to support routing of stormwater will create a significant impact on available services.

Growth Inducement
Approval and implementation of the proposed Basin Plan amendment would have no direct effect on growth inducement. Implementation of the PCBs TMDL would not directly or indirectly foster economic or population growth or the construction of additional housing. The project does not require the construction of additional capacity at wastewater treatment plants that might be considered to indirectly foster growth.

Significant Irreversible Changes in the Environment
Approval and implementation of the proposed Basin Plan amendment would result in the irretrievable commitment of petroleum products to fuel vehicles and equipment and the creation of some greenhouse gases that might be viewed as contributing to significant irreversible environmental changes already occurring globally.

12.9. Alternatives Analysis

The discussion that follows evaluates four alternatives to the proposed Basin Plan amendment establishing the PCBs TMDL. It presents a brief evaluation of each alternative. None of the alternatives evaluated significantly lessen the environmental impacts of the proposed project. The proposed project is not expected to result in significant impacts that cannot be mitigated and thus it is not reasonable to look to other alternatives to lessen significant impacts. Some of the alternatives do meet some of project's objectives. However, they generally result in attainment of water quality objectives in a longer period of time and thus do not meet one of the primary objectives which is attainment of water quality objectives in the shortest time frame possible. In addition, there would be a longer period of time during which the environmental impact of exposure to Bay fish contaminated with PCBs would continue. The proposed project is thus the preferred alternative.

No-Project Alternative
The "No-Project" alternative means that the Water Board would not adopt the Basin Plan amendment that establishes the numeric fish tissue target and associated PCBs TMDL, allocations, implementation plan, monitoring requirements, or special studies. A "No-Project" alternative would not set targets, nor would monitoring be required to demonstrate achievement

of those targets or protection of beneficial uses. The Regional Monitoring Program (RMP) may continue to collect and evaluate data on the status and trends of PCBs in San Francisco Bay.

The "No-Project" alternative is anticipated to achieve some of the objectives of the proposed project, including protection of the beneficial uses for sport fishing and wildlife habitat. As seen in Figure 28, the Bay is projected to recover without the project due to natural attenuation of PCBs in the environment. However, it would take nearly 100 years to attain the desired condition, about 60 years more than if the proposed project alternative is implemented. The "No-Project" alternative would delay recovery of the Bay and attainment of beneficial uses by about 60 years, and unduly prolong the associated impacts to Bay sports fish consumers. This alternative would unnecessarily maintain human health risk to Bay sport fish consumers for a longer time than under the proposed project. Thus, it would not meet the objective of attaining water quality objectives in as short a time frame as feasible.

Finally, the "No-Project" alternative would not lessen the environmental impacts over the proposed project because 1) other regulatory programs already require many of the actions and the associated environmental impacts of the proposed project, and 2) the environmental impacts of exposure to PCBs contaminated Bay fish would continue for a longer period of time than with the proposed project and there would be no measures to address risk management of the potential health impacts of consuming PCB-contaminated Bay fish.

Alternative TMDL of 20 kg/yr

We considered doubling the TMDL to 20 kg/yr, using the same long-term mass balance model used to set the proposed TMDL. A higher TMDL of 20 kg/yr would result in higher load and wasteload allocations for each source category. This alternative will result in attainment of the TMDL target in about 70 years. This alternative would delay recovery of the Bay and attainment of beneficial uses by about 30 years, and unduly prolong the associated impacts to Bay sports fish consumers. This alternative would unnecessarily maintain human health risk to Bay sport fish consumers for a longer time than under the proposed project. Under this alternative, we could assign a higher load allocation to the Central Valley, resulting in earlier attainment of the allocations. However, wasteload allocations for industrial and municipal wastewater would remain the same, as they are set at current performance. Therefore, the proposed implementation actions for industrial and municipal wastewater dischargers would remain the same and the associated environmental impacts would remain the same. The stormwater wasteload allocations would likely increase under this alternative. However, there would still be a need for load reductions from stormwater discharges, maintaining the requirements for stormwater agencies to evaluate and implement PCBs source and treatment control BMPs through pilot studies as in the proposed project. Requirements for in-bay contaminated sites, special studies, monitoring, dredgers, and risk management would remain the same as in the proposed project under this alternative. This alternative would not significantly change environmental impacts compared to the proposed project. As the implementation actions would remain the same under this alternative, i.e., implementation requirements for wastewater, stormwater, Central Valley, in-bay contaminated sites, special studies, monitoring, navigational dredging, and risk management in the first phase of implementation would remain the same.

Alternative Based on Equal Percentage Load Reductions

Under this alternative, we could propose load and wasteload allocations based on an equal percentage reduction from each source category to achieve the TMDL of 10kg/yr. This alternative would result in a higher wasteload allocation to stormwater, and lower allocations to

all other source categories. Figure 31 below presents the proposed equal percentage load reductions.

This alternative is not acceptable for several reasons. First, this alternative allows stormwater, the highest controllable source of PCBs in the watershed, to continue to discharge PCBs in sediment at concentrations above the sediment goal. This is anticipated to delay recovery of the Bay from impairment and attainment of beneficial uses. The environmental impacts of exposure to PCBs contaminated Bay fish would continue for a longer period of time than with the proposed project. Increased stormwater load allocations would not relieve the need for implementation of source and treatment control BMPs for PCBs to the maximum extent practicable. As such, it would be speculative to contend that there would be either increased or reduced environmental impacts associated with increased stormwater load allocations. Third, this alternative would place a large financial burden on industrial and municipal wastewater treatment plants. Most treatment plants would need to upgrade to advanced treatment technology to lower PCBs loads to meet the wasteload allocations under this alternative. This would require a large capital investment for wastewater treatment plants upgrades to achieve small load reductions and potential increased environmental impacts to air quality and noise due to the facility upgrades. Requirements for in-bay contaminated sites, special studies, status and trend monitoring, navigational dredging, and risk management would remain the same as in the proposed project under this alternative and thus any relevant environmental impacts would be the same.

This alternative would not significantly change environmental impacts compared to the proposed project. Increased stormwater wasteload allocations would still require load reductions from stormwater discharges, maintaining the requirements for stormwater agencies to evaluate and implement PCBs source and treatment control BMPs through pilot studies as in the proposed project. It would be speculative to contend that there would be either increased or reduced environmental impacts associated with increased stormwater load allocations.

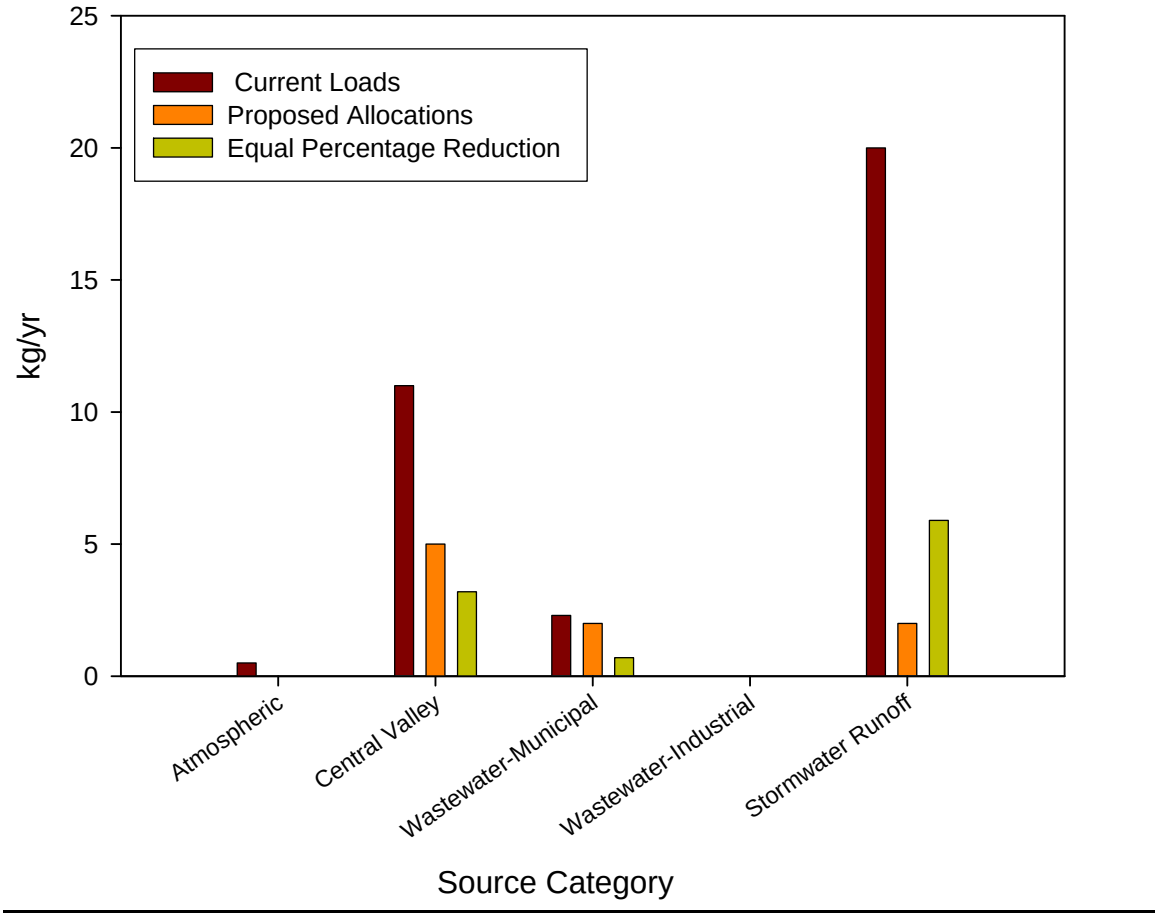

Figure 31-Current Loads, Proposed Allocations and Equal Percentage Reduction Alternative Allocation

Lowest Possible Cost Alternative

Under this alternative, we would propose a TMDL that would attain the project objectives at the lowest possible costs. This alternative would establish a TMDL and set a fish tissue target but would limit implementation to existing on-going implementation actions and monitoring requirements. No new implementation actions, special studies, or pilot studies to evaluate stormwater control measures would be required under this alternative.

As with the “No Project” alternative, the lowest possible cost alternative would achieve some of the objectives of the proposed project, including protection of the beneficial uses for sport fishing and wildlife habitat. As seen in Figure 28, the Bay is projected to recover without the project due to natural attenuation of PCBs in the environment. However, it would take nearly 100 years to attain the desired condition, about 60 years more than if the proposed project alternative is implemented. The “No-Project” alternative would delay recovery of the Bay and attainment of beneficial uses by about 60 years, and unduly prolong the associated impacts to Bay sports fish consumers. This alternative would unnecessarily maintain human health risk to Bay sport fish consumers for a longer time than under the proposed project. Thus, it would not meet the objective of attaining water quality objectives in as short a time frame as possible.

Finally, the lowest possible cost alternative would not lessen the environmental impacts over the proposed project because: 1) other regulatory programs already require many of the actions and the associated environmental impacts of the proposed project, and 2) the environmental impacts of exposure to PCBs contaminated Bay fish would continue for a longer period of time than with the proposed project and there would be no measures to address risk management of the potential health impacts of consuming PCB-contaminated Bay fish.

12.10. Economic Considerations Related to Potential Implementation Plan Actions

The California Environmental Quality act requires that whenever a Water Board adopts a rule that requires the installation of pollution control equipment or establishes a performance standard or treatment requirement, it must conduct an environmental analysis of reasonably foreseeable means of compliance. This analysis must take into account a reasonable range of factors, including economics. This proposed Basin Plan Amendment for the PCBs TMDL includes performance standards (e.g., targets and allocations). This part of the Staff Report discusses the reasonably anticipated costs associated with implementation methods and monitoring that might result from the proposed Basin Plan amendment.

Discussion of Costs

The costs of implementation actions are difficult to estimate because the PCBs TMDL implementation plan applies to the entire nine-county, Bay-wide region and applies to numerous public agencies as well as individual dischargers all of which have a variety of ways to comply with the plan and will be guided in selecting those implementation measures by their technical needs and budgetary constraints. Thus it is difficult to anticipate which implementation measures are most likely to be adopted. Furthermore, phased pilot or feasibility studies will be used to identify and evaluate the feasibility (which includes relative costs and effectiveness) of most compliance measures. These assessments need to be completed before the dischargers select which action or combination of actions will be most effective and appropriate to their allocations. Also, as mentioned previously, many of the implementation measures are part of ongoing programs, and will only result in incremental increases to costs of existing programs.

These factors result in the likelihood that short-term costs will be modest. In the longer term, achieving the proposed allocations set by the TMDL may be more substantial for some dischargers. However, the implementation plan and schedule provide an opportunity to analyze alternative means of compliance and time to identify and secure adequate funding. Furthermore, because PCBs adhere to soil as do numerous other pollutants such as PBDEs, PAHs, chlorinated legacy pesticides, and heavy metals, efforts to reduce PCBs loads to the Bay will produce multi-pollutant reduction benefits. Thus, some of the costs to comply with this TMDL will also result in compliance with other TMDLs and regulatory requirements for those other pollutants.

This discussion provides an overview of the relative costs for each of the source categories that are required to implement new actions, or increased actions to attain allocations or implementation requirements. Cost information is based on similar work performed elsewhere and the best professional judgment of Water Board staff. All costs discussed below are rough estimates and only provide an order-of-magnitude characterization of costs. The main focus of the implementation plan is on control of PCBs in stormwater. Thus, the largest implementation costs are anticipated to result from implementation of the stormwater runoff allocation portion of the TMDL.

The following provides an overview:

Municipal and Industrial Wastewater Dischargers

Wastewater dischargers are required to maintain optimum treatment performance for solids removal and identify and manage controllable sources, i.e., maintain their existing performance. Existing overall annual wastewater management costs exceed $500 million to control all pollutants in wastewater, including PCBs.

The costs of implementing the TMDL are considered to be incidental increases associated with identifying and managing controllable sources. For municipalities, we expect this effort would be part of existing pollution prevention and source control programs and new costs would be minimal. Industrial facilities are already required to manage their use of PCBs. Use of PCBs is allowed in enclosed containers such as in transformers and capacitors. However, as this equipment ages, it must be removed and replaced with PCBs-free products. There will be some new costs associated with conducting or causing to conduct monitoring and special studies to fill critical data gaps and to participate in risk management activities (see discussion below).

Stormwater Runoff Dischargers

The costs of attaining load reductions above and beyond natural attenuation may be substantial. Five California municipalities and one metropolitan area with stormwater programs that were demonstrating meaningful progress toward maximum extent practicable compliance were surveyed for their stormwater compliance costs in the 2002/2003 time frame (SWRCB, 2005). Annual cost per household for the six stormwater programs surveyed ranged from $18 to $46. The City of Fremont, included in this cost survey, has costs estimated at $46 per household. The majority of these program costs were for street sweeping and litter/debris removal. We estimate Bay Area municipalities currently spend approximately $100 million per year to manage urban stormwater runoff (assuming 2.5 million households and average fees of $40 per year per household). An upper bound estimate of the cost of complying with stormwater control requirements for all pollutants, including PCBs, can be thought of in terms of the costs of treating wastewater in the Bay area. The load allocations in the TMDL for stormwater and wastewater are equal. The current cost of treating wastewater, $500 million annually, results in wastewater loads that are equal to what the Basin Plan amendment allocates for stormwater. We consider $500 million to be the reasonable cost estimate to the stormwater runoff management agencies annually. The $500 million would translate into average fees of $200 per year per household.

The TMDL implementation plan calls for dischargers to conduct pilot studies of best management practices and control measures. Based on these studies the effective, cost-efficient control measures will be implemented through NPDES permits. It is anticipated that the overall costs are likely to be less than $500 million per year.

These include:

- Removal and disposal of PCBs from building materials
- Remediation of contaminated soil or sediment in public rights-of-way, wastewater conveyances, and private property
- Street cleaning (includes sweeping or washing)
- Storm drain and inlet maintenance (above and beyond normal practices)

- Construction, operation, and maintenance of facilities/units to intercept, divert, and treat urban stormwater runoff (e.g., detention basins, wetlands, underground sand filters, swales)
- Diversion of urban storm water runoff to wastewater treatment

To provide further perspective on costs, we expect that facilities which treat urban stormwater runoff will have the highest costs of these options. As discussed in the Implementation Plan section of this report, we anticipate dischargers' pilot studies will include consideration of strategic runoff treatment in areas with elevated PCBs in soils/sediments, such as older industrial urban areas. Underground sand filters, such as the Austin sand filter, are likely retrofit treatment unit candidates in these areas. Typically the Austin sand filter system is designed to handle runoff from drainage areas up to 50 acres (U.S. EPA, 1999b), and Caltrans has considered these filters for treatment of highway runoff and has estimated the cost of installing the Austin sand filter unit at around $240,000 (Caltrans, 2004). The Ettie Street pump station drainage area in Oakland, CA, which encompasses 100 acres, is one of the industrial urban areas that drain to the Bay that have high levels of PCBs in storm drain sediments. In the case of Ettie Street watershed, installing Austin sand filters to treat the entire drain area would cost less than $5 million, based on the above figures. Assuming there are about 20 Ettie Street-like watersheds that have high levels of PCBs in storm drain sediments that drain to the Bay, the cost of installing these sand filters would be around $100 million. Annual costs for maintaining sand filter systems
average about 5 percent of the initial construction (U.S. EPA, 1999b). These are rough estimates, but they likely represent the order of magnitude of costs of retrofit treatment units.

The proposed implementation plan and schedule provides opportunity to analyze alternative means of compliance and allows time for urban stormwater runoff agencies to secure reasonable funding. There will be some new costs associated with conducting or causing to conduct monitoring and special studies to fill critical data gaps and to participate in risk management activities (see discussion below.)

Navigational Dredging and Disposal

The proposed sediment dredging and disposal implementation actions are based on the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (U.S. ACE 1998) that is already being implemented. We estimate the current annual costs of dredging and dredged sediment disposal exceeds $50 million per year. Although the LTMS is expected to result in substantial costs over time as less dredged material is disposed of in the bay and more is disposed of in the ocean or at upland sites, little or no new costs should be incurred as a result of this PCBs TMDL and implementation plan, because the overall goal of the LTMS is to limit in-Bay disposal and to the degree the TMDL requires less in-Bay disposal it is furthering the LTMS program's overall goals. There will be some new costs associated with conducting or causing to conduct monitoring and special studies to fill critical data gaps and to participate in risk management activities (see discussion below).

In-Bay Contaminated Sediment

A number of sites within the Bay have already been cleaned up or are currently undergoing remediation or feasibility studies to determine the type and level of clean-up required. The costs per site vary significantly; a few past and planned projects are discussed below.

In 2001, remedial actions, including dredging three feet of PCB and metal contaminated sediment and placement of an underwater isolation cap were completed for the offshore portion

of the former U.S. Steel property in South San Francisco (URS, 2002b). A total of 20,100 cubic yards of sediment were removed from San Francisco Bay at this site. 14,100 cubic yards were dredged from the subtidal area and 6,000 cubic yards were removed using land-based equipment from the intertidal area. The majority of the sediments were taken to a landfill for disposal. The cost of this cleanup was estimated to be about $12 million for three acres.

A Draft Final Feasibility Study for Parcel F (offshore PCB-contaminated sediments) completed for Hunters Point Shipyard (U.S. Navy, 2007) evaluated a range of alternatives from no action, to complete removal and off-site disposal and included a number of alternatives and a mix of remedial actions, including focused removal, off-site disposal and monitored natural recovery. Other than no action, the costs of conducting some level of active remediation were from $13,060,000 to $42,630,000. The costs included base costs, including costs for remedial design and construction, as well as future costs for 30 years of operation and maintenance. The costs of monitored natural recovery, an element of multiple remedial alternatives, were considered to include the costs of deed restrictions, (documentation, posting and enforcement) baseline monitoring, (bathymetric survey and sediment core sampling using a vibracore sampler (30 samples) and annual monitoring over a 30 year period.

A Final Feasibility Study for Seaplane Lagoon at Alameda Point (Battelle 2005) to address PCBs and cadmium and other contaminants in subtidal sediments evaluated a range of remedial alternatives, including but not limited to, no action, monitored natural recovery with institutional controls, isolation capping, dredging/dewatering and off-site disposal and focused dredging/upland confinement. Other than no action, the costs of conducting some level of active remediation were from $2,280,106 to $40,947,000. The costs included base costs, including costs for remedial design and construction, as well as future costs for 30 years of operation and maintenance. The Water Board and other regulatory agencies signed a Record of Decision in 2005 (U.S. Navy 2006b) with the U.S. Navy, agreeing to the selected remedial alternative of dredging, dewatering, and off-site disposal at a 30-year net present value of $24,600,000. The remedy calls for dredging 63,000 cubic yards of contaminated sediment over approximately a 6-acre area. Even though there are and will be substantial costs associated with completing existing and new clean-ups, these sites will be subject to clean-up with or without this TMDL and therefore little or no new costs are anticipated as a result of this TMDL as the costs of cleanup would be driven by other regulatory programs.

Monitoring and Special Studies

The Regional Monitoring Program (RMP) conducted by the San Francisco Estuary Institute collects much of the data that are required as part of the ongoing assessment of the health of the Bay. The RMP is jointly funded by municipal and industrial wastewater dischargers.The current budget for the program is $3.4 million, which includes monitoring of PCBs and other pollutants in water, sediment, and fish throughout the Bay. Maintaining this effort should be sufficient to track attainment of the TMDL target and recovery of the Bay. In addition, the RMP also conducts regular monitoring of PCBs loads from the Central Valley and limited monitoring of PCBs loads from local tributaries. Additional monitoring will be necessary to sufficiently quantify loads from urban stormwater runoff and the loads reduced from urban stormwater runoff control actions. As with the control measures, this loads monitoring would also address other pollutants of concern such as heavy metals, pesticides, and petroleum hydrocarbons. This additional monitoring could cost $500 thousand to $1 million per year.

There are critical data needs to improve our understanding of PCBs fate and transport, particularly PCBs in Bay sediments. Also, a better understanding of the rate of natural

attenuation of PCBs in Bay environments is needed to predict with more certainty the recovery time of the Bay, and to inform on the need for more, less or different implementation actions. We estimate these costs, which would be shared by all source category dischargers, urban stormwater dischargers, and dredgers, would total approximately $1 to 3 million, some of which would be accounted for within the existing RMP. These costs include the costs of collecting information regarding pollutants other than PCBs that are the subject of study by the RMP.

Risk Management

The risk management activities range from conducting studies to support health risk assessment and risk communication associated with eating Bay fish, providing outreach and advice to the general public and regular consumers of Bay fish, and investigating and implementing direct actions that reduce the actual and potential exposure of, and mitigate health impacts to, people and communities most likely to be consuming PCBs-contaminated fish from San Francisco Bay. Responsibility and costs associated with these activities will be shared among the California Office of Environmental Health Hazard Assessment, the California Department of Toxic Substances Control, the California Department of Health Services, dischargers, community-based organizations, and the Water Board. Although the direct risk reduction, studies, outreach efforts and mitigation actions have yet to be determined, they will likely cost in the range of $100 thousand to $1 million dollars per year. Some of these costs are likely to be incurred without this TMDL as the San Francisco Bay mercury TMDL and mercury watershed NPDES permit require similar risk management activities.

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California Regional Water Quality Control Board

San Francisco Bay Region

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Linda S. Adams
Secretary of Environmental Protection

Arnold Schwarzenegger
Governor

ORDER NO. R2-2007- 0032
NPDES PERMIT NO. CA0005240

WASTE DISCHARGE REQUIREMENTS FOR THE C&H SUGAR COMPANY, INC. AND CROCKETT COMMUNITY SERVICES DISTRICT DISCHARGING TO CARQUINEZ STRAIT THROUGH DISCHARGE POINTS 001 AND 002

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order.

Table 1. Discharger Information

Discharger	C&H Sugar Company, Inc. and Crockett Community Services District (CSD)
Name of Facility	C&H Sugar Refinery, Joint C&H-CSD Philip F. Meads Water Treatment Plant, and CSD's collection system
Facility Address	830 Loring Avenue
	Crockett, California 94525
	Contra Costa County

The Discharger is authorized to discharge from the following discharge points as set forth below.

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Approximately 22.5 million gallons per day (MGD) of once-through barometric condenser cooling waters, condensed vapors from vacuum pans, once-through cooling water from evaporators and a steam turbine, and roof drains.	38° 03' 27"	122° 13' 06"	Carquinez Strait
002	Approximately 0.93 MGD of secondary treated effluent (process wastewater from the Refinery plus pretreated wastewater from CSD)	38° 03' 30"	122° 13' 28"	Carquinez Strait
003	Storm water: estimated flow rate is less than 1,000 gallons per day (GPD).	38°03'27"	122°13'03"	Carquinez Strait
005	Storm water: estimated flow is 15,000 GPD.	38°03'27"	122°13'11"	Carquinez Strait
006	Storm water: estimated flow is 1,000 GPD.	38°03'27"	122°13'31"	Carquinez Strait
007	Storm water: estimated flow is less than 100 GPD.	38°03'27"	122°13'18"	Carquinez Strait

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
008	Storm water: estimated flow is 3,000 GPD.	38°03'27"	122°13'11"	Carquinez Strait
009	Storm water: estimated flow is less than 100 GPD.	38°03'26"	122°12'46"	Carquinez Strait
011	Storm water: estimated flow is 15,000 GPD.	38°03'27"	122°13'11"	Carquinez Strait
012	Storm water: estimated flow is less than 500 GPD.	38°03'27"	122°13'11"	Carquinez Strait
013	Storm water: estimated flow is 4,500 GPD.	38°03'27"	122°13'15"	Carquinez Strait
014	Storm water: estimated flow is 15,000 GPD.	38°03'22"	122°13'15"	Carquinez Strait
016	Storm water: estimated flow is 25,000 GPD.	38°03'19"	122°13'36"	Carquinez Strait

Table 3. Administrative Information

This Order was adopted by the Regional Water Board on:	April 11, 2007
This Order shall become effective on:	June 1, 2007
This Order shall expire on:	May 31, 2012
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 00-025 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted therein, and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted therein, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 11, 2007.

Bruce H. Wolfe, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order.

Table 4. Facility Information

Discharger	C&H Sugar Company, Inc. and Crockett Community Services District (CSD)
Name of Facility	C&H Sugar Refinery, Joint C&H-CSD Philip F. Meads Water Treatment Plant, and CSD's collection system
Facility Address	830 Loring Avenue
	Crockett, CA 94525
	Contra Costa County
Facility Contact, Title, and Phone	Elizabeth M. Crowley, Environmental Compliance Manager, C&H Sugar Company, 510-787-4352 Kent Peterson, General Manager, Crockett Community Services District, 510-787-2992
Mailing Address	C&H - 830 Loring Avenue, Crockett, CA 94525 CSD - P.O. Box 578, Crockett, California 94525
Type of Facility	Cane Sugar Refining / privately owned wastewater treatment plant
Facility Design Flow	35 MGD for once-through cooling water discharge through 001 1.78 MGD secondary treated wastewater for discharge through 002

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. Background. C&H Sugar Company, Inc. (hereinafter C&H), and the Crockett Community Services District (hereinafter CSD), collectively the Discharger or Dischargers, submitted a Report of Waste Discharge, dated October 15, 2004, and applied for an NPDES permit reissuance to discharge once-through cooling water and treated wastewater from C&H facilities located at 830 Loring Avenue in Crockett, Contra Costa County.

Both C&H and CSD signed a Joint-Use Agreement on November 9, 1976, such that the C&H Refinery wastewater and municipal sewage from the Crockett area are treated at the Joint C&H-CSD Philip F. Meads Water Treatment Plant (hereinafter the Joint Treatment Plant, or JTP). The Dischargers jointly own the JTP, and C&H is the operator.

B. Facility Description.

1. C&H owns and operates a sugar refinery for refining raw cane sugar (hereinafter the Refinery) at 830 Loring Avenue, Crockett, Contra Costa County. The Refinery processes raw cane sugar at an average melt rate of 3,300 tons per day over approximately 260 operating days per year. Crystalline and liquid refined sugars are delivered to clients by both trucks and rail cars. The Refinery currently operates on a 7-day cycle with 5 days on and 2 days down. The Refinery discharges once-through cooling water and condensed vapor, untreated, through Discharge Point 001 to

Carquinez Strait within Northern San Francisco Bay, a water of the United States. The annual average discharge flow rates though Discharge Point 001 during 2002 to 2005 ranged from 13.7 to 22.5 MGD. Sugar refining process wastewater (e.g., char washings, scum filter aid slurries, refinery equipment wash water, railcar washings, truck washings, and contaminated storm water runoff from process areas) with an annual average flow rate of approximately 0.45 MGD is processed through the primary wastewater treatment plant (PWTP) at the Refinery. Solids removed from PTWP are dewatered on a belt filter and loaded on a truck for off-site disposal as soil amendment.

2. Municipal sewage from the community of Crockett is collected, comminuted, and degritted by CSD. Crockett is a small community with few industrial activities. Municipal sewage from CSD mainly consists of wastewater from residential and commercial sources, and inflow/infiltration. After preliminary treatment, the sewage is pumped to the JTP for secondary treatment and disinfection prior to discharge. The annual average flow from the CSD to the JTP is approximately 0.33 MGD. All the grit removed by the District is hauled to a permitted Class III disposal site.

3. The JTP is an activated sludge wastewater treatment facility that treats primary treated sugar refining wastewater and pretreated (comminuted and de-gritted) domestic wastewater from CSD. The Refinery's sanitary wastes and tank truck washings, which account for less than 0.01 MGD, are combined with the pretreated sewage from CSD. The average dry weather design flow (ADWF) from CSD to the JTP is 0.3 MGD. During wet weather, the peak wet weather flow may increase to 3.3 MGD. Excess sewage, which is due to storm water inflow/infiltration, is temporarily stored in CSD's storm water surge tanks prior to returning it to the JTP for treatment. During wet weather, peak flows are stored in the JTP storm water surge tank prior to introduction into the initial surge tank at the beginning of the treatment process for equalization. The treated wastewater is discharged through Discharge Point 002 to the Carquinez Strait.

   Both discharges 001 and 002 discharge through deep water outfalls to Carquinez Strait.

4. **Biosolids Treatment.** Waste biosolids from the dissolved air clarifiers at the JTP are dewatered by belt presses, mixed with lime if stabilization is necessary, and discharged to a truck for off-site disposal. Liquor removed from belt-presses is combined with washings, waste samples, drips, storm water, and other process waters in a plant sump, and returned to the initial surge tank at the beginning of the treatment process.

5. As described in Table 2 and the attached Fact Sheet (**Attachment F**), C&H has several storm water discharge outfalls to discharge the storm water collected at the Refinery, which are regulated by this Order. This Order includes a provision requiring C&H to submit an updated Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP) to reflect the up-to-date storm water pollution prevention and best management practices in place at the Refinery.

Attachment B to this Order is a Location Map showing the location of the C&H facility within the region; **Attachment C** is a flow schematic of the treatment plant.

C. **Legal Authorities.** This Order is issued pursuant to CWA Section 402 and implementing regulations adopted by the USEPA and CWC Chapter 5.5, Division 7. It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4 for discharges that are not subject to regulation under CWA Section 402.

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and through special studies. **Attachments A** through **G**, which contain background information and rationale for requirements of the Order, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.

E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with CWC Section 13389.

F. **Technology-Based Effluent Limitations.** NPDES regulations at 40 CFR 122.44 (a) require permits to include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations, which are based on:

- San Francisco Bay Region Basin Plan, Table 4-2, effluent limits for all treatment facilities,
- Effluent Limitations Guidelines for the Sugar Processing Point Source Category, established at 40 CFR 409 Subpart B (Crystalline Cane Sugar Refining Subcategory), and
- Best professional judgment (BPJ) pursuant to CWA Section 402 (a) (1) (B) and NPDES regulations at 40 CFR 125.3.

A detailed discussion of the technology-based effluent limitations is included in the Fact Sheet (**Attachment F**).

G. **Water Quality-Based Effluent Limitations.** Section 122.44(d) requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) may be established: (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) on an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

H. **Water Quality Control Plans.** The Water Quality Control Plan for the San Francisco Bay Basin (hereinafter Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the

State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board, Office of Administrative Law and the U.S. EPA, where required. Beneficial uses applicable to Carquinez Strait within the Suisun Basin are as follows.

Table 5. Basin Plan Beneficial Uses of Carquinez Strait

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Carquinez Strait	• Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Preservation of Rare and Endangered Species (RARE) • Water Contact Recreation (REC-1) • Noncontact Water Recreation (REC-2) • Fish Spawning (SPWN) • Wildlife Habitat (WILD) • Navigation (NAV).

Requirements of this Order implement the Basin Plan.

I. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

J. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

K. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The State Water Board subsequently amended the SIP on February 24, 2005, and the amendments became effective on July 31, 2005. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so. Requirements of this Order implement the SIP.

L. Compliance Schedules and Interim Requirements. Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement new or revised WQOs. This Order includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations is included in the Fact Sheet (Attachment F).

M. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (40 C.F.R. § 131.21; 65 Fed. Reg. 24641; (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000 must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

N. Stringency of Requirements for Individual Pollutants. This Order contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. Restrictions on these pollutants are specified in federal regulations and are no more stringent than required by the CWA. Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21 (c) (1). The remaining water quality objectives and beneficial uses implemented by this Order [those for arsenic, cadmium, chromium (VI), copper (fresh water), lead, nickel, silver (1-hour), and zinc] were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21 (c) (2). Collectively, this Order's restrictions on individual pollutants are no more

stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

O. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

P. **Anti-Backsliding Requirements.** CWA Sections 402 (o) (2) and 303 (d) (4) and NPDES regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. As discussed in detail in the Fact Sheet (**Attachment F**), the prohibitions, limitations, and conditions of this Order are consistent with applicable federal and State anti-backsliding requirements.

Q. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in **Attachment E**. The MRP may be amended by the Executive Officer pursuant to USEPA regulation 40 CFR 122.62, 122.63, and 124.5.

R. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in **Attachment D**. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger (**Attachment G**). A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

S. **Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.C, IV.D, V.B, and VI.C of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

T. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and

recommendations. Details of notification are provided in the Fact Sheet (**Attachment F**) of this Order.

U. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (**Attachment F**) of this Order.

III. DISCHARGE PROHIBITIONS

A. The discharge of any wastewater at a location or in a manner different from that described in this Order is prohibited.

B. The discharge of once-through cooling water from Discharge Point 001 and treated wastewater from Discharge Point 002 to Carquinez Strait at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 is prohibited.

C. The use of algaecides or anti-fouling additives in the barometric condenser cooling water system, discharged at Discharge Point 001, is prohibited.

D. The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in 40 CFR 122.41(m)(4) and in A.13 of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (**Attachment G**).

E. Any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited. Sanitary sewer overflows, if any, are the responsibility of CSD.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations for Discharge Point 001

Compliance with the effluent limitations shall be demonstrated at Discharge Point 001, with compliance measured at Monitoring Location M-001 as described in the attached MRP (**Attachment E**).

1. **Biochemical Oxygen Demand (BOD).** The BOD_5 of the discharge shall not exceed the following limits:

Constituent	Units	Maximum Daily	Monthly Average
BOD_5	lbs/day	6,700	2,200

[1] This effluent limitation is based on a sugar melt rate of 3,300 tons/day and the effluent limits as defined at 40 CFR 409 Subpart B. The resulting mass loading limits are rounded to two significant figures.

[2] Compliance with the maximum daily effluent limitation for BOD_5 shall be determined by evaluating the mass (lbs/day) of BOD_5 discharged at Discharge Point 001 during the calendar day that sampling occurs. The mass (lbs/day) of BOD_5 discharged shall be determined in accordance with the following equation:

lbs/day BOD_5 = [BOD_5 effluent concentration (mg/L) at Discharge Point 001] x effluent flow (MGD) at Discharge Point 001 x 8.34

where: Conversion factor (8.34) in [(L•lb)/(gallon•kg)] = 3.7854 L/gallon x 2.2 lbs/kg

[3] Compliance with the monthly average effluent limitation for BOD_5 shall be determined by averaging all daily values (lbs/day) as determined above in each calendar month.

2. **pH.** The pH of the discharge at Discharge Point 001 shall not be less than 6.0 nor greater than 9.0.

The Discharger may elect to use a continuous on-line monitoring system(s) for measuring pH. If the Discharger employs continuous monitoring, then the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied:

(i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and

(ii) No individual excursion from the range of pH values shall exceed 60 minutes.

3. **Final Effluent Limitations for Toxics Substances (Discharge Point 001).**

a. The discharge of effluent at Discharge Point 001 shall not exceed the following limitations.

Table 6. Final Effluent Limitations for Discharge Point 001 - Toxic Pollutants

Constituent	Units	Final Effluent Limitations[1][2]	
		AMEL	MDEL
Arsenic	µg/L	290	510
Copper [3]	µg/L	96	150
Lead	µg/L	3.7	8.3
Mercury [4][5]	µg/L	0.018	0.046
Nickel	µg/L	200	480
Selenium [4]	µg/L	3.9	8.7
Zinc	µg/L	250	590
Cyanide [4][6][7]	µg/L	3.2	6.4
TCDD TEQ [8]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Bis (2-ethylhexly) phthalate	µg/L	54	110

Footnotes for Table 6:

[1] a. All analyses shall be performed using current USEPA methods, or equivalent methods approved in writing by the Executive Officer.

c. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

d. All metal limitations are total recoverable.

[2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the

Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, the table below indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes. An ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Constituent	ML (µg/L)
Arsenic	1
Copper	2
Lead	0.5
Mercury	0.0005
Nickel	1
Selenium	1
Zinc	1
Cyanide	5
Bis(2-ethylhexyl) phthalate	5

[3] Alternate Effluent Limits for Copper:

a. If a copper SSO for the receiving water becomes legally effective, resulting in adjusted saltwater chronic objective of 2.5 µg/L and acute objective of 3.9 µg/L as documented in the *Copper Site-Specific Objectives in San Francisco Bay, Proposed Basin Plan Amendment and Draft Staff Report, dated March 2, 2007*, upon its effective date, the following limitations shall supersede those copper limitations listed in Table 6 (the rationale for these effluent limitations can be found in the Fact Sheet **[Attachment F]**).

MDEL of 120 µg/L and AMEL of 76 µg/L.

b. If a different copper SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

[4] Final effluent limitations for mercury, selenium, and cyanide shall become effective on April 28, 2010. The Regional Water Board may amend these final effluent limitations prior to this date in accordance with TMDLs or SSOs that become effective subsequent to the effective date of this Order.

[5] Effluent mercury monitoring shall be performed using ultra-clean sampling and analysis techniques, with a method detection limit of 0.0002 µg/L or lower, or a ML of 0.0005 µg/L or lower.

[6] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[7] Alternate Effluent Limits for Cyanide:

a. If a cyanide SSO for the receiving water becomes legally effective, resulting in adjusted saltwater chronic objective of 2.9 µg/L and acute objective of 9. 4 µg/L (based on Regional Water Board Resolution R2-2006-0086), upon its effective date, the following limitations shall supersede those cyanide limitations, above (the rationale for these effluent limitations can be found in the Fact Sheet **[Attachment F]**).

MDEL of 42 µg/L and AMEL of 21 µg/L.

b. If a different cyanide SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

[8] Final effluent limitations TCDD TEQ shall become effective on June 1, 2017. The Regional Water Board may amend these final effluent limitations prior to this date in accordance with TMDLs that become effective subsequent to the effective date of this Order.

b. **Intake Water Credit.** The Discharger has met the conditions specified in Section 1.4.4, Intake Water Credits, of the SIP as discussed in detail in the Fact Sheet (**Attachment F**). The Discharger qualifies to receive intake water credits for arsenic, copper, lead, mercury, nickel, selenium, zinc, cyanide, and bis(2-ethylhexyl)phthalate applicable toward the concentration-based effluent limitations specified in IV.A.3.a of this Order. These credits are to offset any concentrations of the pollutant found in the intake water, and are only allowed on a pollutant-by-pollutant and discharge-by-discharge basis. Furthermore, these credits are only applicable upon each specific discharge event, and compliance with the concentration-based limitations specified in IV.A.3.a of this Order shall be assessed as follows:

(1) **Monitoring Requirements.** The Discharger shall monitor the pollutant concentrations in the intake and in the effluent (at Monitoring Locations M-INF-001 and M-001, respectively) during the same day.

(2) **Compliance Evaluation.** If an effluent concentration exceeds the effluent limits specified in IV.A.3.a, IV.A.4.a., and IV.C.1 this Order, the Discharger may use intake water credits when determining compliance. In this case, (a) if the intake water concentration sampled during the same day is higher than the effluent concentration, or (b) if it can be statistically demonstrated that the effluent concentration is not significantly higher than the intake water concentrations (see attached Fact Sheet [**Attachment F**] for an statistical analysis example for this purpose), then the concentration and mass-based effluent limitations specified in IV.A.3.a, IV.A.4.a., and IV.C.1 of this Order are not applicable, and therefore, the discharge is in compliance. Otherwise, the effluent must comply with the effluent limitations specified in IV.A.3.a, IV.A.4.a., and IV.C.1 of this Order.

4. Interim Effluent Limitations for Toxic Pollutants

a. The following interim effluent limitations shall become effective upon the effective date of this Order and shall remain effective for the time periods indicated in the table below:

Table 7. Interim Effluent Limitations for Discharge Point 001 -Toxic Pollutants

Constituent	Units	Interim Effluent Limitations	
		MDEL	Effective Period
Mercury	µg/L	0.16	Permit effective date through April 27, 2010
Selenium	µg/L	26	Permit effective date through April 27, 2010
Cyanide	µg/L	5	Permit effective date through April 27, 2010

b. **Intake water credit.** The intake credit provision in IV.A.3.b above also applies to mercury and selenium interim limitations in this section.

B. Effluent Limitations for Discharge Point 002

Compliance with the effluent limitations shall be demonstrated at Discharge Point 002, with compliance measured at Monitoring Location M-002 as described in the attached MRP (**Attachment E**).

1. Effluent Limitations for Conventional and Non-Conventional Pollutants

Discharge of conventional and non-conventional pollutants at Discharge Point 002 shall be limited as follows:

Table 8. Effluent Limitations – Conventional and Non-Conventional Pollutants (Discharge Point 002)

Constituent	Units	Effluent Limitations			
		Maximum Daily	Monthly Average	Instantaneous Minimum	Instantaneous Maximum
BOD_5[1]	lbs/day	2,000 [2]	730 [3]	---	---
TSS[1]	lbs/day	2,600 [2]	730 [3]	---	---
pH[4]	s.u.	---	---	6.0	9.0
Oil and Grease	mg/L	20	10	---	---
Total Chlorine Residual[5]	mg/L	---	---	---	0.0
Settleable Matter					
Before April 18, 2010	mL/L/hr	2.0	1.0	---	---
After April 18, 2010	mL/L/hr	0.2	0.1	---	---

Footnotes for Table 8:

[1] These effluent limitations are based on a raw sugar melt rate of 3,300 tons/day at the Refinery, and a maximum daily average flow rate of 1.67 MGD and a maximum monthly average flow rate of 0.54 MGD of municipal wastewater flow from CSD during 2002 through 2005 for maximum daily and monthly average effluent limitation calculation, respectively. The resulting mass loading limits are rounded to two significant figures.

[2] Compliance with the maximum daily effluent limitations for BOD_5 and TSS shall be determined by evaluating the mass (lbs/day) of BOD_5 and TSS discharged at Discharger Point 002 (as monitored at M-002 as described in the attached Monitoring and Reporting Program or MRP, **Attachment E**). The mass (lbs/day) of BOD_5 and TSS discharged shall be determined in accordance with the following equations:

- lbs/day BOD_5 = BOD_5 concentration (mg/L) at Discharge Point 002 x effluent flow (MGD) at Discharge Point 002 x 8.34
- lbs/day TSS = TSS concentration (mg/L) at Discharge Point 002 x effluent flow (MGD) at Discharge Point 002 x 8.34

where: Conversion factor (8.34) in [(L•lb)/(gallon•kg)] = 3.7854 L/gallon x 2.2 lbs/kg

[3] Compliance with the monthly average effluent limitations for BOD_5 and TSS shall be determined by averaging all daily values (lbs/day) determined as above.

[4] If the Discharger employs continuous monitoring, pursuant to 40 CFR § 401.17, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i)The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

[5] The chlorine residual requirement is defined as below the limit of detection by standard methods of analysis, as defined in *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfite dosage (which could be interpolated), and chlorine concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positive chlorine residual exceedances are not violations of this permit limitation.

2. **Total Coliform Bacteria.** The median concentration of total coliform bacteria in 5 consecutive effluent samples of the discharge at Discharge Point 002 shall not exceed 240 MPN/100 mL. No single sample shall exceed 10,000 MPN/100mL.

3. **Final Effluent Limitations for Toxic Pollutants.** The discharge of effluent at Discharge Point 002, as monitored at M-002, shall not exceed the following limitations.

Table 9. Final Effluent Limitations for Discharge Point 002 - Toxic Pollutants

Constituent	Units	Final Effluent Limitations[1][2]	
		AMEL	MDEL
Copper [3]	µg/L	88	150
Lead	µg/L	3.6	9.7
Mercury [4][5]	µg/L	0.012	0.038
Cyanide [4][6][7]	µg/L	2.9	6.4
TCDD TEQ [8]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Bis (2-ethylhexyl) phthalate	µg/L	54	110

Footnotes for Table 9:

[1] a. All analyses shall be performed using current USEPA methods, or equivalent methods approved in writing by the Executive Officer.

c. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

d. All metal limitations are total recoverable.

[2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, the table below indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes. An ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Constituent	ML (µg/L)
Copper	2
Lead	0.5
Mercury	0.0005
Cyanide	5
Bis(2-ethylhexyl) phthalate	5

[3] Alternate Effluent Limits for Copper:

a. If a copper SSO for the receiving water becomes legally effective, resulting in adjusted saltwater chronic objective of 2.5 µg/L and acute objective of 3.9 µg/L as documented in the *Copper Site-Specific Objectives in San Francisco Bay, Proposed Basin Plan Amendment and Draft Staff Report, dated March 2, 2007,* upon its effective date, the following limitations shall supersede those copper limitations listed in Table 9 (the rationale for these effluent limitations can be found in the Fact Sheet [**Attachment F**]).

MDEL of 120 µg/L and AMEL of 70 µg/L.

b. If a different copper SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

[4] Final effluent limitations for mercury and cyanide shall become effective on April 28, 2010. The Regional Water Board may amend these final effluent limitations prior to this date in accordance with TMDLs or SSOs that become effective subsequent to the effective date of this Order.

[5] Effluent mercury monitoring shall be performed using ultra-clean sampling and analysis techniques, with a method detection limit of 0.0002 µg/L or lower (or a ML of 0.0005 µg/L or lower).

[6] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[7] Alternate Effluent Limits for Cyanide:

a. If a cyanide SSO for the receiving water becomes legally effective, resulting in adjusted saltwater chronic objective of 2.9 µg/L and acute objective of 9.4 µg/L (based Regional Water Board Resolution R2-2006-0086), upon its effective date, the following limitations shall supersede those cyanide limitations, above (the rationale for these effluent limitations can be found in the Fact Sheet [**Attachment F**]).

MDEL of 44 µg/L and AMEL of 20 µg/L.

b. If a different cyanide SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

[8] Final effluent limitations TCDD TEQ shall become effective on June 1, 2017. The Regional Water Board may amend these final effluent limitations prior to this date in accordance with any TMDLs that become effective subsequent to the effective date of this Order.

4. Interim Effluent Limitations for Toxic Pollutants at Discharge Point 002

The following interim effluent limitations shall become effective upon the effective date of this Order and shall remain effective for the time periods indicated in the table below:

Table 10. Interim Effluent Limitations for Discharge Point 002 – Toxic Pollutants

Constituent	Units	Interim Effluent Limitations		
		MDEL	AMEL	Effective Period
Mercury	µg/L	1.0	0.21	Permit effective date through April 27, 2010
Cyanide	µg/L	22.8	---	Permit effective date through April 27, 2010

5. Whole Effluent Acute Toxicity. Representative samples of the discharge at Discharge Point 002 shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Section V.A of the attached MRP (**Attachment E**).

a. The survival of bioassay test organisms in 96-hour flow-through bioassays of undiluted effluent shall be:

(1) An eleven (11)-sample median value of not less than 90 percent survival; and

(2) An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

b. These acute toxicity limits are further defined as follows:

(1) 11-sample median limit:

Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

(2) 90th percentile limit:

Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive

Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

d. If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, then such toxicity does not constitute a violation of this effluent limitation.

6. Whole Effluent Chronic Toxicity.

a. Compliance with the Basin Plan narrative toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the treated effluent at Discharge Point 002 meeting test acceptability criteria and Section V.B of the MRP (**Attachment E**):

(1) Conduct routine monitoring;

(2) Accelerate monitoring after exceeding a single sample maximum value of 10 TUc[1].

(3) Return to routine monitoring if accelerated monitoring does not exceed the "trigger" in (2) above;

(4) If accelerated monitoring confirms consistent toxicity above the "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) in accordance with a workplan submitted in accordance with Section V.B of the MRP (**Attachment E**), and that incorporates any and all comments from the Executive Officer;

(5) Return to routine monitoring after appropriate elements of TRE workplan are implemented and either the toxicity drops below "trigger" level in (2), above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

b. *Test Species and Methods*: The Discharger shall conduct routine monitoring with the most sensitive species determined during the chronic toxicity screening study performed by the Discharger and approved by the Executive Officer. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in **Appendix E** of the MRP (**Attachments E-1** and **E-2**). In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, "Short-term Methods for Estimating the Chronic Toxicity of

[1] A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. These terms, their usage, and other chronic toxicity monitoring program requirements are defined in more detail in the MRP (**Attachment E**). Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge.

Effluents and Receiving Waters to Freshwater Organisms," currently 4th Edition (EPA-821-R-02-013), with exceptions granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

C. Interim Mercury Mass Emission Effluent Limitations:

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the current mercury mass loading to the receiving water does not increase by complying with the following:

1. **Mass limit for 001.** The 12-month moving average annual load for mercury shall not exceed 0.080 kilograms per month (kg/mo). Compliance shall be calculated using 12-month moving average loadings from Discharge 001 to the receiving water for the entire year. However, if it is determined that a specific monthly sample qualifies for intake water credit, the mass limit will not apply to that specific month.

2. **Mass limit for 002.** The 12-month moving average annual load for mercury shall not exceed 0.026 kg/mo. Compliance shall be calculated using 12-month moving average loadings to the receiving water from Discharge 002 for the entire year.

3. **Compliance determination method.** Compliance for each month will be determined based on the 12-month moving averages over the previous 12 months of monitoring calculated using the method described below:

   Monthly mass emission loading, in kg/mo = Flow, in mgd x Concentration, in µg/L x 0.1151

   12-month moving average Hg mass loading = Running average of last 12 monthly mercury mass loadings, in kg/mo

   Where:
   0.1151—conversion factor

   If more than one mercury measurement is obtained in a calendar month, the average of the calculated mass loadings for the sampling days is used as the monthly value for that month. If the results are less than the method detection limit used, the concentrations are assumed to be equal to the method detection limit.

4. **Mercury Final Limits.** The Regional Water Board intends to amend this Order in accordance with the mercury TMDL and WLAs. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following adoption of the TMDL and WLA, if the requirements for an exception to the rule are met.

D. Land Discharge Specifications

N/A

E. Reclamation Specifications

N/A

F. Storm Water Limitations

The discharge of storm water runoff Wastes 003 through and including 016 outside the pH range or containing constituents in excess of the following limits is prohibited:

Constituent	Units	Limitation
pH	standard units	6.5 to 8.5
Visible oil	---	none observed
Visible color	---	none observed

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Discharge to Carquinez Strait shall be limited as follows:

1. Temperature shall be limited as follows:

   a. Discharges, either individually or combined with other discharges, shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, that exceeds 25 percent of the cross sectional area of Carquinez Strait at any point.

   b. Discharges shall not cause a surface temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place.

2. The discharge shall not cause the following conditions to exist at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam in concentrations that cause nuisance or adversely affect beneficial uses;

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

   c. Alterations of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and

   e. Toxic or other deleterious substances to be present in concentrations or quantities, which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

3. The discharge shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.

4. The discharge shall not cause the following limits to be exceeded in waters of the State at any one place within one foot of the water surface:

   a. Dissolved Oxygen: 5.0 mg/L, minimum

      The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 Standard Units.

   d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and 0.16 mg/L as N, maximum.

   e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

5. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to CWA Section 303, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

B. Groundwater Limitations

N/A

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in **Attachment D** of this Order.

2. **Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the attached *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (the Standard Provisions, **Attachment G**), and any amendment thereto. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions (**Attachment G**), the specifications of this Order shall apply. Duplicative requirements in the federal Standard Provisions in VI.A.1.2, above (**Attachment D**) and the regional Standard Provisions (**Attachment G**) are not separate requirements. A violation of a duplicative requirement does not constitute two separate violations.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in **Attachment E**. The Discharger shall also comply with the requirements contained in *Self-Monitoring Program, Part A, August 1993* (**Attachment G**).

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to, or will cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.

b. If new or revised WQOs, or TMDLs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs and waste load allocations in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, or as otherwise permitted under Federal regulations governing NPDES permit modifications.

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.

d. If administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge.

e. Or as otherwise authorized by law.

The Dischargers may request permit modification based on the above. The Dischargers shall include in any such request an antidegradation and antibacksliding analysis.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Effluent Monitoring.

The Discharger shall continue to monitor and evaluate the discharge from Outfalls 001 and 002 (measured at M-001 and M-002) for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter, according to the sampling frequency specified in the attached MRP **(Attachment E)**. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under Effluent Monitoring for Minor Discharger.

The Discharger shall evaluate on an annual basis if concentrations of any constituent increase over past performance. The Discharger shall investigate the cause of the increase. The investigation may include, but need not be limited to, an increase in the effluent monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. This may be satisfied through identification of these constituents as "Pollutants of Concern" in the Discharger's Pollutant Minimization Program described in Provision VI.C.3.a, below. A summary of the annual evaluation of data and source investigation activities shall also be reported in the annual self-monitoring report.

A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the Order expiration date. This final report shall be submitted with the application for permit reissuance.

b. Ambient Background Receiving Water Monitoring.

The Discharger shall collect or participate in collecting background ambient receiving water monitoring for priority pollutants that is required to perform a reasonable potential analysis (RPA) and to calculate effluent limitations. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the receiving water at a point after the discharge has mixed with the receiving waters. This provision may be met through monitoring through a collaborative ambient monitoring program for San Francisco Bay, such as the Regional Monitoring Program (RMP). This permit may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data.

The Discharger shall submit a final report that presents all the data to the Regional Water Board 180 days prior to Order expiration. This final report shall be submitted with the application for permit reissuance.

c. Cooling Water Intake Impingement and Entrainment Study.

Before January 1, 2010, the Discharger shall submit to the Regional Water Board a *Cooling Water Intake Report and Sampling Plan*, which shall include the following components.

(1) A list and summary of historical studies characterizing baseline biological conditions in area of influence of the Refinery's cooling water intake structure(s); impingement and entrainment mortality attributed to the Refinery's cooling water intake structure(s); and the physical conditions of Carquinez Strait in the vicinity of the facility's cooling water intake structure(s). The Discharger shall describe the extent to which historical data are representative of current conditions and address whether the data were collected using appropriate quality assurance/quality control procedures.

(2) A summary of source water physical data and cooling water intake structure data that includes the following information:

i. A location map showing the location of the Refinery's cooling water intake structure;

ii. A narrative description and drawings showing the physical configuration of the source water body where the Refinery's cooling water intake structure(s) is located, including aerial dimensions, depths, salinity and temperature regimes;

iii. Characterization of the source water body's hydrological and geomorphological features that define the cooling water intake structure(s) area of influence within the water body;

iv. A description of where the Refinery's cooling water intake structure(s) is located within the water body and in the water column, including latitude and longitude;

v. A description of the operation of each cooling water intake structure, including design and actual (average and maximum) intake flows (volume, rate, velocity), daily hours of operation, number of days per year of operation and seasonal changes; and

vi. Engineering schematics of the cooling water intake structure(s).

(3) A summary of past and on-going consultations with federal, state, and local fish and wildlife agencies regarding environmental impacts of the facility's cooling water intake structure(s).

(4) A sampling plan for field studies to develop or update scientifically valid estimates of impingement and entrainment mortality attributed to the Refinery's cooling water intake structure(s). As necessary, the sampling plan shall provide for source water, baseline biological characterization in the vicinity of the cooling water intake structure(s), in addition to identifying/describing methods to estimate impingement mortality and entrainment.

Baseline biological characterization of the source water body shall (whether through a historic or proposed study), at a minimum, include the following information:

i. A list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structure(s).

ii. Identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated should include the forage base as well as those most significant to commercial and recreational fisheries.

iii. Identification and evaluation of the primary period of reproduction, larval recruitment, and periods of peak abundance for relevant taxa.

iv. Data representative of seasonal and daily activity (e.g., feeding and migration within the water column) of biological organisms within the vicinity of the cooling water intake structure(s).

v. Identification of all threatened, endangered, or protected species that might be susceptible to impingement and entrainment at the facility's cooling water intake structure(s).

Information provided by the Discharger in this study, and information resulting from subsequent studies, will be used by the Regional Water Board in its on-going determination of specific requirements for inclusion into the facility's NPDES permit and to establish the best technology available to minimize adverse environmental impacts associated with the facility's cooling water intake structure(s).

d. Optional Mass Offset.

If the Discharger can demonstrate that further net reductions of the total mass loadings of 303(d)-listed pollutants to the receiving water cannot be achieved through economically feasible measures, such as aggressive source control, wastewater reuse, and treatment plant optimization, but only through a mass offset program, the Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

3. Best Management Practices and Pollution Minimization Program

a. Both C&H and CSD, acting as the Discharger, shall continue to improve, in a manner acceptable to the Executive Officer, the Discharger's existing Pollutant Minimization Program to reduce pollutant loadings to the treatment plant, and therefore, to the receiving waters.

b. The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each calendar year. The annual report shall cover January through December of the preceding year. Each annual report shall include at least the following information:

(1) A brief description of its treatment facilities and treatment processes.

(2) A discussion of the current pollutants of concern. Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.

(3) Identification of sources for the pollutants of concern. This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

(4) Identification of tasks to reduce the sources of the pollutants of concern. This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks itself or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time-line shall be included for the implementation of each task.

(5) Outreach to employees and CSD rate payers. The Discharger (both C&H and CSD) shall inform employees and rate payers, respectively, about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input to the Program.

(6) Discussion of criteria used to measure the Program's and tasks' effectiveness. The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item (b) (3, 4, and 5), above.

(7) Documentation of efforts and progress. This discussion shall detail all the Discharger's activities in the Pollution Minimization Program during the reporting year.

(8) Evaluation of Program's and tasks' effectiveness. The Discharger shall use the criteria established in (b) (6) to evaluate the Program's and tasks' effectiveness.

(9) Identification of Specific Tasks and Time Schedules for Future Efforts. Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the treatment plant, and subsequently in its effluent.

c. Pollutant Minimization Program for Pollutants with Effluent Limitations.

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

(1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or

(2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in the SIP.

d. If triggered by the reasons in c. above, the Discharger's PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

(1) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

(2) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer, when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

(3) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

(4) Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

(5) The annual report required by 3.b. above, shall specifically address the following items:

i. All PMP monitoring results for the previous year;

ii. A list of potential sources of the reportable priority pollutant(s);

iii. A summary of all actions undertaken pursuant to the control strategy; and

iv. A description of actions to be taken in the following year.

4. Action Plan for Cyanide.

If and when the cyanide alternate limits in IV become effective, the Discharger shall implement an action plan for cyanide in accordance with the Basin Plan Amendment to adopt cyanide SSOs.

5. Action Plan for Copper

If and when the copper alternate limits in IV become effective, the Discharger shall initiate implementation of an action plan for copper in accordance with the Basin Plan Amendment to adopt copper SSOs.

6. Storm Water Pollution Prevention Plan and Best Management Practices Plan

a. C&H shall submit an updated Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP) either annually or sooner if there is a change in the operation of the Refinery, which may substantially affect the quality of the storm water discharged. Annual updates shall be submitted by July 1 of each year. If there is no change to either of these plans, then the annual updates shall be a letter indicating that the plan is unchanged. The Discharger shall implement the SWPPP and BMPP, and the SWPPP shall comply with the requirements contained in the attached Standard provisions (**Attachment G.**)

In any update of the SWPPP and BMPP, the Discharger shall (1) include at least an up-to-date drainage map for the facility; (2) identify on a map of appropriate scale the areas which contribute runoff to the permitted discharge points; (3) describe the activities in each area and the potential for contamination of storm water runoff and discharge of hazardous waste/material; and, (4) address the feasibility for containment and/or treatment of the storm water.

(1) The SWPPP shall describe site-specific management practices for minimizing storm water runoff from being contaminated, and for preventing contaminated storm water runoff from being discharged directly to waters of the State. It shall also include pollution prevention measures which are above and beyond

the current practices to further reduce and control sources of total organic carbon (TOC) and total suspended solids (TSS).

(2) The BMPP shall entail site-specific plans and procedures implemented and/or to be implemented to prevent hazardous waste/material from being discharged to waters of the State. The updated BMPP shall be consistent with the requirements of 40 CFR 125, Subpart K, and the general guidance contained in the "NPDES Best Management Guidance Document", USEPA Report No. 600/9-79-045, December 1979 (revised June 1981). In particular, a risk assessment of each area identified by C&H shall be performed to determine the potential of hazardous waste/material discharge to surface waters.

The SWPPP and BMPP may include time schedules for the completion of management practices and procedures. C&H shall begin implementing the SWPPP and BMPP within 10 calendar days of approval by the Executive Officer, unless otherwise directed.

b. C&H shall also submit an annual storm water report by July 1 of each year, covering data for the previous wet weather season for E-003 through E-016. The annual storm water report shall, at a minimum, include: (a) a tabulated summary of all sampling results and a summary of visual observations taken during the inspections; (b) a comprehensive discussion of the compliance record and any corrective actions taken or planned to ensure compliance with waste discharge requirements; and (c) a comprehensive discussion of source identification and control programs for constituents that do not have effluent limitations (e.g., total suspended solids.)

7. Construction, Operation and Maintenance Specifications

a. Wastewater Facilities, Review and Evaluation, and Status Reports.

(1) The Discharger shall operate and maintain its wastewater collection, treatment, and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

(2) The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a.1 above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its wastewater facilities and operation practices, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and

evaluation procedures, and applicable wastewater facility programs or capital improvement projects.

b. Operations and Maintenance Manual (O&M), Review and Status Reports.

(1) The Discharger shall maintain an O&M Manual as described in the findings of this Order for the Discharger's wastewater facilities. The O&M Manual shall be maintained in usable condition and be available for reference and use by all applicable personnel.

(2) The Discharger shall regularly review, revise, or update, as necessary, the O&M Manual(s) so that the document(s) may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its O&M manual, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures and applicable changes to its operations and maintenance manual.

c. Contingency Plan, Review and Status Reports.

(1) The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (**Attachment G**) and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a Contingency Plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

(2) The Discharger shall regularly review and update, as necessary, the Contingency Plan so that the plan may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures and applicable changes to its Contingency Plan.

8. Special Provisions

a. Sludge Management Practices Requirements.

(1) Permanent biosolids disposal activities at the JTP are not authorized by this Order.

(2) The treatment, disposal, storage, or processing of biosolids shall not cause waste material to be in any position where it is, or can be, carried from the biosolids treatment, disposal, storage, or processing site and deposited in waters of the State.

(3) The biosolids treatment, storage and handling site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least 100-year storm and protection from the highest possible tidal stage that may occur.

b. Sanitary Sewer Management Plan.

The CSD's collection system, excluding any satellite collection system, is part of CSD that is subject to this Order. As such, CSD shall properly operate and maintain its collection system as required by **Attachment D**, Standard Provisions – Permit Compliance, subsection I.D. This Order does not authorize discharges from CSD's collection system to waters of the United States. In the event there is a discharge from CSD's collection system to waters of the United States, CSD shall report the discharge as required by **Attachment D**, Standard Provisions – Reporting, subsections V.E.1 and V.E.2 of this Order. If there is such a discharge, it shall be CSD's duty to mitigate the discharge as required by **Attachment D**, Standard Provisions – Permit Compliance, subsection I.C. The General Waste Discharge Requirements for Collection System Agencies (Order No. 2006-0003 DWQ) also have requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. While CSD must comply with both the General Waste Discharge Requirements for Collection System Agencies (General Collection System WDR) and this Order, the General Collection System WDR more clearly and specifically stipulates requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows. Implementation of the General Collection System WDR requirements for proper operation and maintenance and mitigation of spills will satisfy the corresponding federal NPDES requirements specified in this Order. Following reporting requirements in the General Collection System WDR will satisfy NPDES reporting requirements for sewage spills. Furthermore, CSD has agreed to, and shall, comply with the schedule for development of sewer system management plans (SSMPs) as indicated in the letter issued by the Regional Water Board on July 7, 2005, pursuant to Water Code Section 13267. Until the statewide on-line reporting system becomes operational, the

Discharger shall report sanitary sewer overflows electronically according to the Regional Water Board's SSO reporting program.

c. Settleable Matter Reduction.

CSD shall submit progress reports at two-year intervals to describe the status of measures designed to reduce inflow and infiltration to CSD's collection system and to improve grit removal performed by CSD prior to conveying wastewater to the JTP. Each progress report shall be submitted to the Executive Officer by June 30 of each other year, with the first report due on June 30, 2008.

9. Compliance Schedule and Compliance with Final Effluent Limits.

The Discharger shall comply with the following:

Task	Deadline
a. Implement source control measures identified in the Discharger's Infeasibility Report to reduce concentrations of mercury, cyanide, and TCDD TEQ to the treatment plant, and therefore to receiving waters. For the once-through cooling water discharge, the Discharger shall investigate the sources of mercury, selenium, and cyanide in the discharge, or investigate whether the analytical results represent the true pollutant concentrations in the discharge, but not due to matrix interference.	Upon the effective date of this Order.
b. The Discharger shall evaluate and report on the effectiveness of its source control measures in reducing concentrations of mercury and cyanide to the plant. If previous measures have not been successful in enabling the Discharger to comply with final limits for mercury, selenium, cyanide, the Discharger shall also identify and implement additional source control measures to further reduce concentrations of these pollutants. If the copper and cyanide SSO becomes effective and an alternate limit takes effect, the Discharger shall implement any applicable additional pollutant minimization measures described in Basin Plan implementation requirements associated with the copper and cyanide SSO.	Annually in the Annual Best Management Practices and Pollutant Minimization Report required by Provision VI.C.3

Task	Deadline
c. In the event that source control measures are insufficient for meeting final water quality based effluent limits specified in Effluent Limitations and Discharge Specifications IV.A.3 and IV.B.3 for mercury, selenium, and cyanide, the Discharger shall submit a schedule for implementation of additional actions to reduce the concentrations of these pollutants.	July 1, 2009
d. The Discharger shall commence implementation of the identified additional actions in accordance with the schedule submitted in task c, above.	August 15, 2009.
e. Full Compliance with IV. Effluent Limitations and Discharger Specifications A.3.a and B.3.a for mercury, selenium, and cyanide.	April 28, 2010.
f. Full Compliance with IV. Effluent Limitations and Discharger Specifications A.3.a and B.3.a for dioxin-TEQ. Alternatively, the Discharger may comply with the limit in IV through implementation of a mass offset strategy for dioxin-TEQ in accordance with policies in effect at that time.	June 1, 2017.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP (Attachment E of this Order). For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data.

When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (*CV*) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is

calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order).

If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

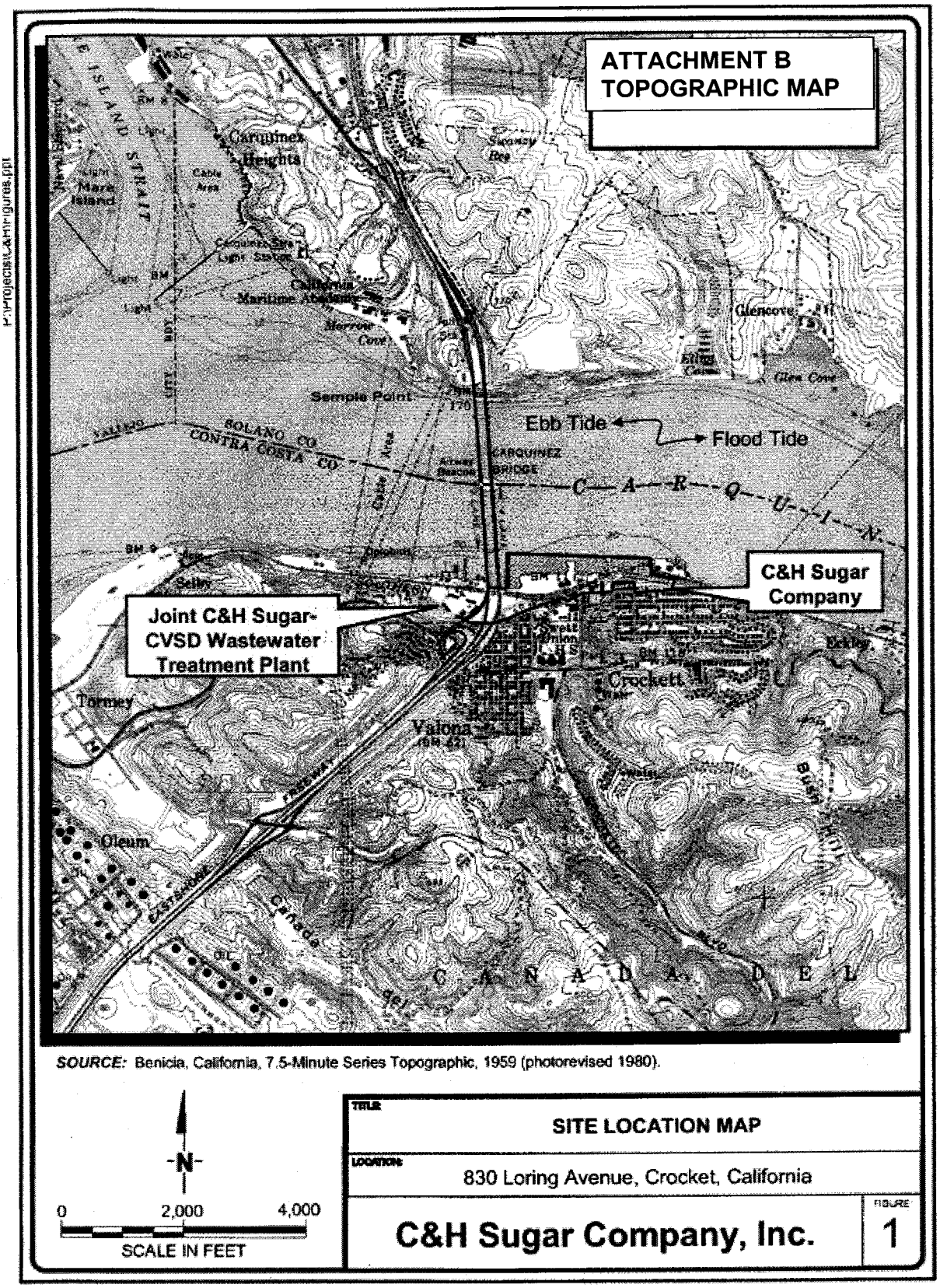
x is the observed value;

μ is the arithmetic mean of the observed values; and

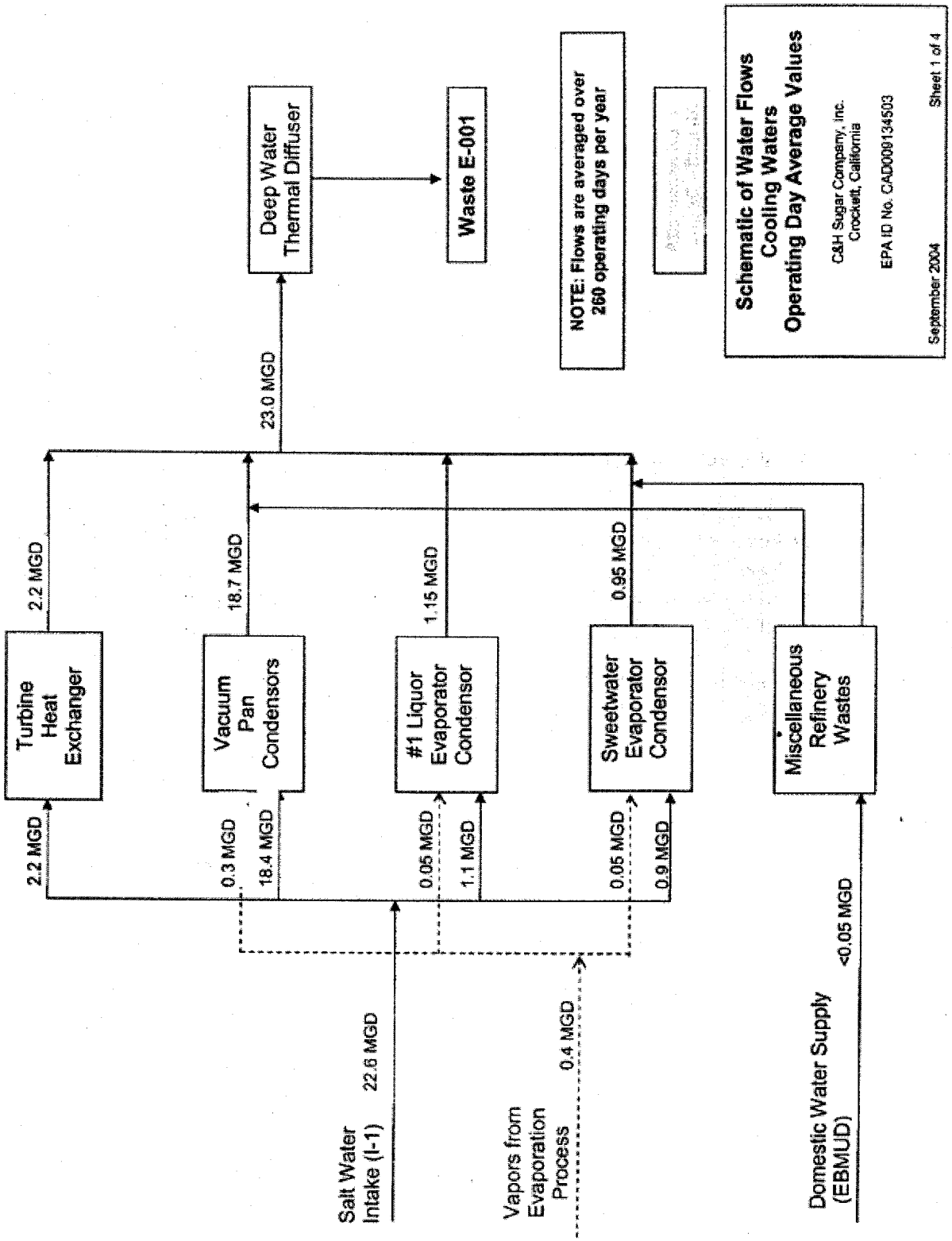
n is the number of samples.

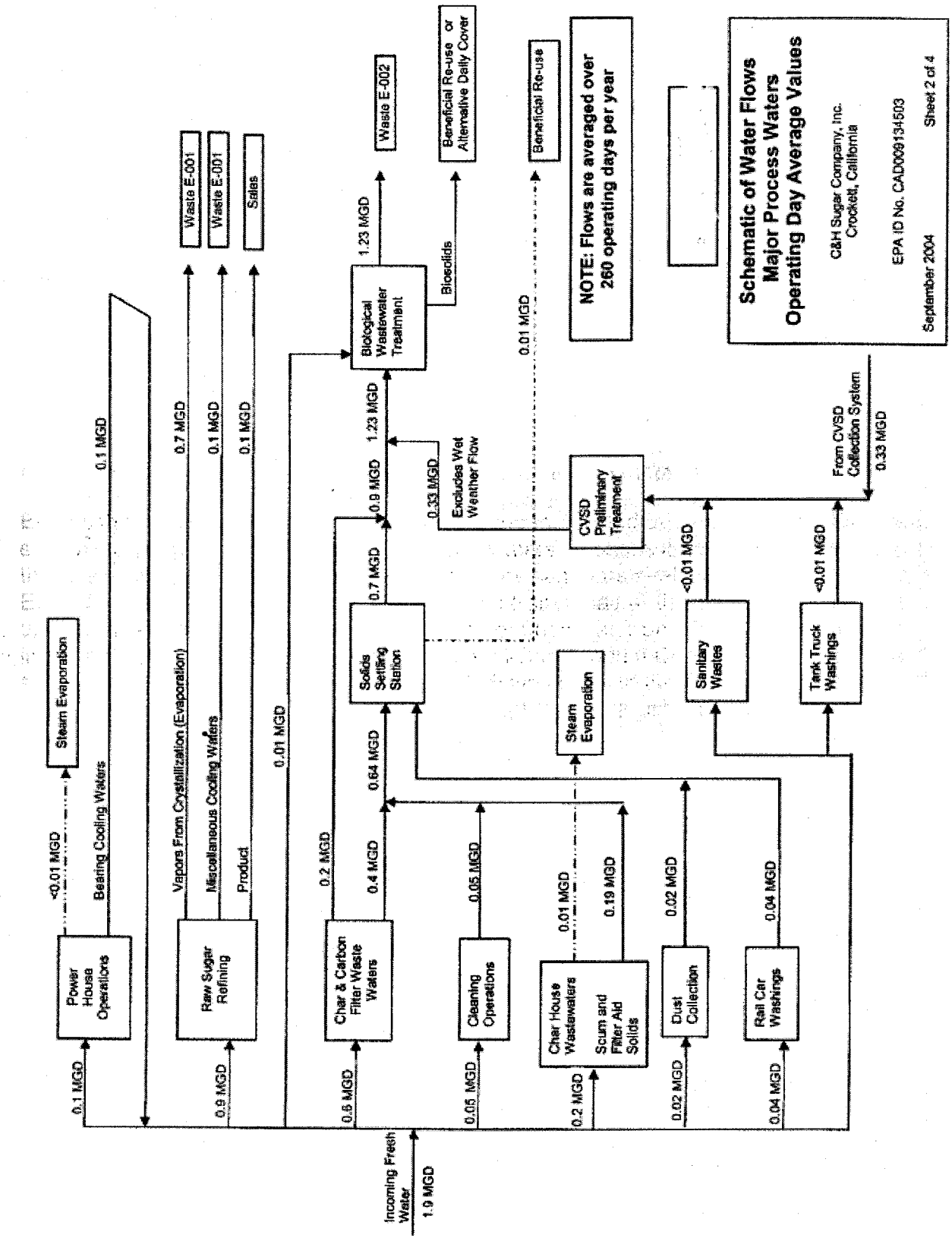
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

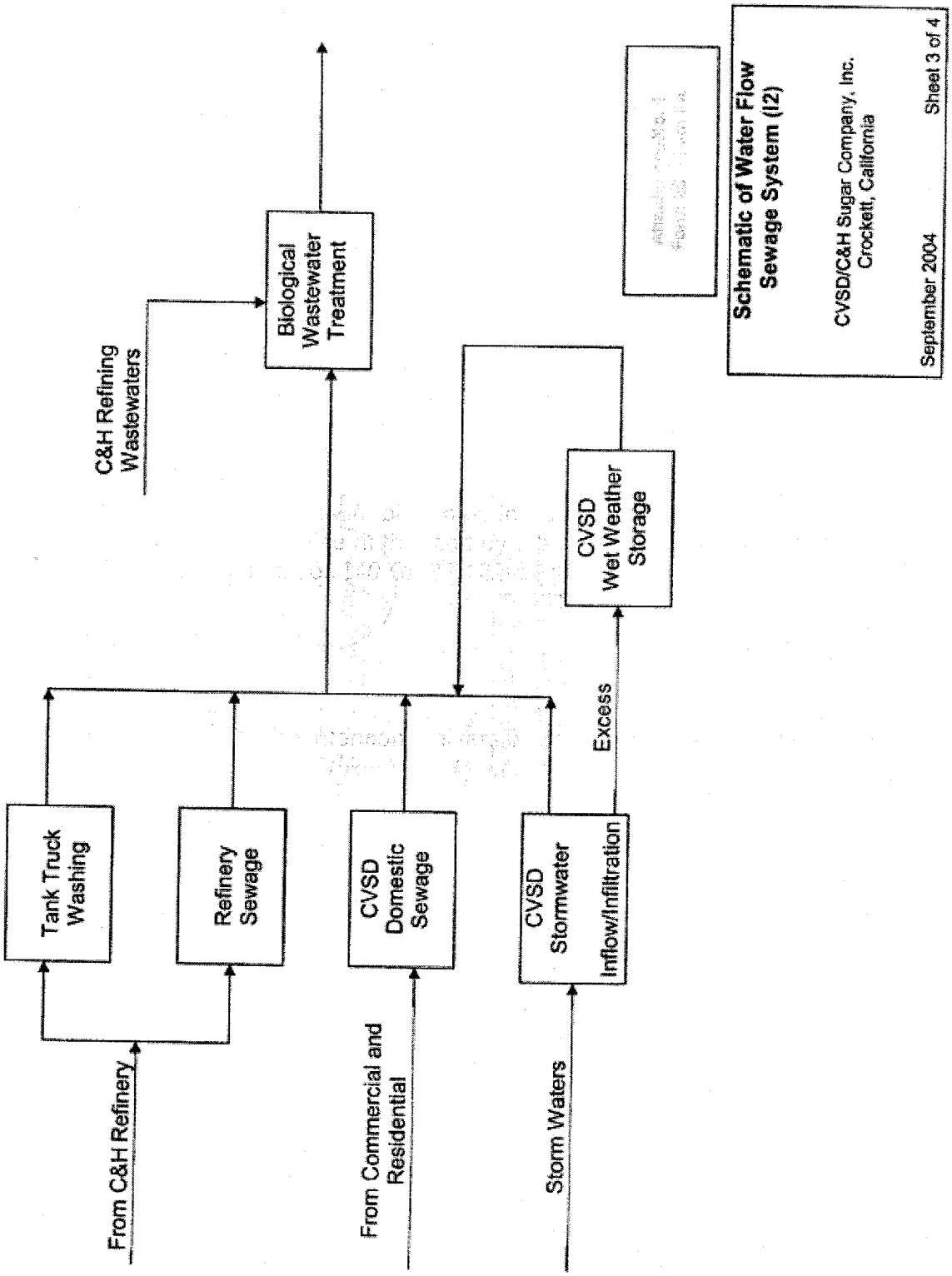
ATTACHMENT B - TOPOGRAPHIC MAP

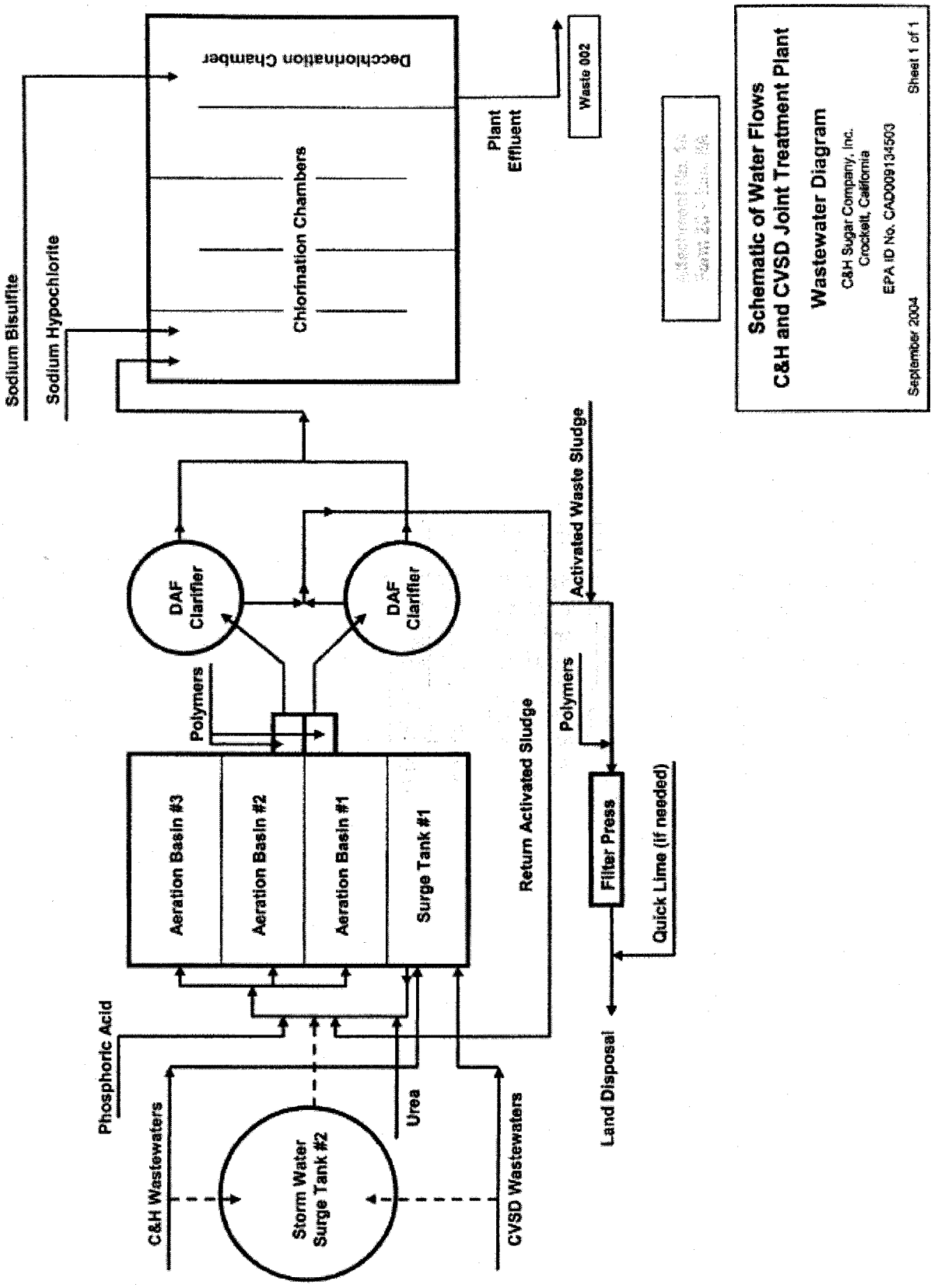


ATTACHMENT C – FLOW SCHEMATIC




Schematic of Water Flows
Major Process Waters
Operating Day Average Values
C&H Sugar Company, Inc.
Crockett, California
EPA ID No. CAD009134503
September 2004
Sheet 2 of 4
NOTE: Flows are averaged over 260 operating days per year
Power House Operations
Raw Sugar Refining
Char & Carbon Filter Waste Waters
Cleaning Operations
Char House Wastewaters
Scum and Filter Aid Solids
Dust Collection
Rail Car Washings
Solids Settling Station
Steam Evaporation
Biological Wastewater Treatment
CVSD Preliminary Treatment
Sanitary Wastes
Tank Truck Washings
Steam Evaporation
Bearing Cooling Waters
Vapors From Crystallization (Evaporation)
Miscellaneous Cooling Waters
Product
Sales
Waste E-001
Waste E-001
Waste E-002
Biosolids
Beneficial Re-use or Alternative Daily Cover
Beneficial Re-use
Excludes Wet Weather Flow
From CVSD Collection System
Incoming Fresh Water
1.9 MGD
0.1 MGD
<0.01 MGD
0.1 MGD
0.9 MGD
0.7 MGD
0.1 MGD
0.1 MGD
0.01 MGD
0.6 MGD
0.2 MGD
0.4 MGD
0.64 MGD
0.7 MGD
0.9 MGD
1.23 MGD
1.23 MGD
0.33 MGD
0.01 MGD
0.33 MGD
<0.01 MGD
<0.01 MGD
0.05 MGD
0.05 MGD
0.01 MGD
0.19 MGD
0.2 MGD
0.02 MGD
0.02 MGD
0.04 MGD
0.04 MGD


Schematic of Water Flow
Sewage System (I2)
CVSD/C&H Sugar Company, Inc.
Crockett, California
September 2004
Sheet 3 of 4
Biological Wastewater Treatment
C&H Refining Wastewaters
CVSD Wet Weather Storage
Excess
Tank Truck Washing
Refinery Sewage
CVSD Domestic Sewage
CVSD Stormwater Inflow/Infiltration
From C&H Refinery
From Commercial and Residential
Storm Waters


Schematic of Water Flows
C&H and CVSD Joint Treatment Plant
Wastewater Diagram
C&H Sugar Company, Inc.
Crockett, California
EPA ID No. CAD009134503
September 2004
Sheet 1 of 1
Sodium Bisulfite
Sodium Hypochlorite
Dechlorination Chamber
Chlorination Chambers
Plant Effluent
Waste 002
DAF Clarifier
DAF Clarifier
Activated Waste Sludge
Polymers
Polymers
Aeration Basin #3
Aeration Basin #2
Aeration Basin #1
Surge Tank #1
Return Activated Sludge
Filter Press
Quick Lime (if needed)
Land Disposal
Phosphoric Acid
Urea
C&H Wastewaters
Storm Water Surge Tank #2
CVSD Wastewaters

ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [*40 CFR §122.41(a)*].

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [*40 CFR §122.41(a)(1)*].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [*40 CFR §122.41I*].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [*40 CFR §122.41(d)*].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [*40 CFR §122.41(e)*].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [*40 CFR §122.41(g)*].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [*40 CFR §122.5I*].

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (Regional Water Board), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [*40 CFR §122.41(i)*] [*CWC 13383*]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [*40 CFR §122.41(i)(1)*];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [*40 CFR §122.41(i)(2)*];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [*40 CFR §122.41(i)(3)*];

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [*40 CFR §122.41(i)(4)*].

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [*40 CFR §122.41(m)(1)(i)*].

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [*40 CFR §122.41(m)(1)(ii)*].

2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3 and I.G.5 below [*40 CFR §122.41(m)(2)*].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [*40 CFR §122.41(m)(4)(i)*]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [*40 CFR §122.41(m)(4)(A)*];

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [*40 CFR §122.41(m)(4)(B)*]; and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [*40 CFR §122.41(m)(4)I*].

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [*40 CFR §122.41(m)(4)(ii)*].

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [*40 CFR §122.41(m)(3)(i)*].

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions – Reporting V.E below [*40 CFR §122.41(m)(3)(ii)*].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [*40 CFR §122.41(n)(1)*].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review [*40 CFR §122.41(n)(2)*].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [*40 CFR §122.41(n)(3)*]:

a. An upset occurred and that the Discharger can identify the cause(s) of the upset [*40 CFR §122.41(n)(3)(i)*];

b. The permitted facility was, at the time, being properly operated [*40 CFR §122.41(n)(3)(i)*];

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [*40 CFR §122.41(n)(3)(iii)*]; and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [*40 CFR §122.41(n)(3)(iv)*].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [*40 CFR §122.41(n)(4)*].

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [*40 CFR §122.41(f)*].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [*40 CFR §122.41(b)*].

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [*40 CFR §122.41(l)(3)*] [*40 CFR §122.61*].

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [*40 CFR §122.41(j)(1)*].

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [*40 CFR §122.41(j)(4)*] [*40 CFR §122.44(i)(1)(iv)*].

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger

shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [*40 CFR §122.41(j)(2)*].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [*40 CFR §122.41(j)(3)(i)*];
2. The individual(s) who performed the sampling or measurements [*40 CFR §122.41(j)(3)(ii)*];
3. The date(s) analyses were performed [*40 CFR §122.41(j)(3)(iii)*];
4. The individual(s) who performed the analyses [*40 CFR §122.41(j)(3)(iv)*];
5. The analytical techniques or methods used [*40 CFR §122.41(j)(3)(v)*]; and
6. The results of such analyses [*40 CFR §122.41(j)(3)(vi)*].

C. Claims of confidentiality for the following information will be denied [*40 CFR §122.7(b)*]:

1. The name and address of any permit applicant or Discharger [*40 CFR §122.7(b)(1)*]; and
2. Permit applications and attachments, permits and effluent data [*40 CFR §122.7(b)(2)*].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, SWRCB, or USEPA within a reasonable time, any information which the Regional Water Board, SWRCB, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, SWRCB, or USEPA copies of records required to be kept by this Order [*40 CFR §122.41(h)*] [*CWC 13267*].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, SWRCB, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [*40 CFR §122.41(k)*].
2. All permit applications shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [*40 CFR §122.22(a)(1)*];

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [*40 CFR §122.22(a)(2)*]; or

c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [*40 CFR §122.22(a)(3)*].

3. All reports required by this Order and other information requested by the Regional Water Board, SWRCB, or USEPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in paragraph (2.) of this provision [*40 CFR §122.22(b)(1)*];

   b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [*40 CFR §122.22(b)(2)*]; and

   c. The written authorization is submitted to the Regional Water Board, SWRCB, or USEPA [*40 CFR §122.22(b)(3)*].

4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, SWRCB or USEPA

prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22I].

5. Any person signing a document under paragraph (2.) or (3.) of this provision shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [*40 CFR §122.22(d)*].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [*40 CFR §122.41(l)(4)*].

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or SWRCB for reporting results of monitoring of sludge use or disposal practices [*40 CFR §122.41(l)(4)(i)*].

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [*40 CFR §122.41(l)(4)(ii)*].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [*40 CFR §122.41(l)(4)(iii)*].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [*40 CFR §122.41(l)(5)*].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates

and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [*40 CFR §122.41(l)(6)(i)*].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [*40 CFR §122.41(l)(6)(ii)*]:

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(A)*].

   b. Any upset that exceeds any effluent limitation in this Order [*40 CFR §122.41(l)(6)(ii)(B)*].

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [*40 CFR §122.41(l)(6)(ii)I*].

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [*40 CFR §122.41(l)(6)(iii)*].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [*40 CFR §122.41(l)(1)*]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [*40 CFR §122.41(l)(1)(i)*]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [*40 CFR §122.41(l)(1)(ii)*].

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [*40 CFR §122.41(l)(1)(iii)*].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or SWRCB of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [*40 CFR §122.41(l)(2)].*

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [*40 CFR §122.41(l)(7)*].

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, SWRCB, or USEPA, the Discharger shall promptly submit such facts or information [*40 CFR §122.41(l)(8)*].

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [*40 CFR §122.41(a)(2)*] [*CWC 13385 and 13387*].

B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this

Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [*40 CFR §122.41(a)(3)*].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [*40 CFR §122.41(j)(5)*].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [*40 CFR §122.41(k)(2)*].

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [*40 CFR §122.42(a)*]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(1)*]:

   a. 100 micrograms per liter (µg/L) [*40 CFR §122.42(a)(1)(i)*];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(1)(ii)*];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(1)(iii)*]; or

   d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(1)(iv)*].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order,

if that discharge will exceed the highest of the following "notification levels" [*40 CFR §122.42(a)(2)*]:

a. 500 micrograms per liter (µg/L) [*40 CFR §122.42(a)(2)(i)*];

b. 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(2)(ii)*];

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(2)(iii)*]; or

d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(2)(iv)*].

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [*40 CFR §122.42(b)*]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [*40 CFR §122.42(b)(1)*]; and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [*40 CFR §122.42(b)(2)*].

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [*40 CFR §122.42(b)(3)*].

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) at 40 CFR §122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which implement the Federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the requirements contained in Self-Monitoring Program, Part A, adopted August 1993 (SMP, **Attachment G**). If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods, or that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Resources Control Board's Quality Assurance Program.

C. Sampling and analysis of additional constituents is required pursuant to Table 1 of the Regional Water Board's August 6, 2001 Letter titled Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy (**Attachment G**).

D. **Minimum Levels**. For compliance and reasonable potential monitoring, analyses shall be conducted using the commercially available and reasonably achievable detection levels that are lower than the WQOs/WQC or the effluent limitations, whichever is lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L approximately equal to parts per billion (ppb).

Table E-1. Test Methods and Minimum Levels for Pollutants with Effluent Limits

CTR #	Constituent	Types of Analytical Methods [a] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD-RIDE	CVAA	DCP
2	Arsenic						2.0		2.0	2.0	1.0		
6	Copper								0.5	2			
7	Lead								0.5	2			
8	Mercury [b]								0.0005			0.0002	
9	Nickel						5.0		1.0	5.0			
10	Selenium								2.0		1.0		
13	Zinc								1.0	10			
14	Cyanide				5								
	Dioxin-TEQ [c]												
68	Bis(2-ethylhexyl)phthalate		5.0										

[a] Analytical Methods / Laboratory techniques are defined as follows:
GC - Gas Chromatography
GCMS - Gas Chromatography/Mass Spectrometry
HRGCMS - High Resolution Gas Chromatography/Mass Spectrometry (i.e., EPA 1613, 1624, or 1625)
LC - High Pressure Liquid Chromatography
FAA - Flame Atomic Absorption
GFAA - Graphite Furnace Atomic Absorption
HYDRIDE - Gaseous Hydride Atomic Absorption
CVAA - Cold Vapor Atomic Absorption
ICP - Inductively Coupled Plasma
ICPMS - Inductively Coupled Plasma/Mass Spectrometry
SPGFAA - Stabilized Platform Graphite Furnace Atomic Absorption (i.e., EPA 200.9)
DCP - Direct Current Plasma
COLOR – Colorimetric

[b] Use ultra-clean sampling (USEPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (USEPA 1631) for mercury monitoring.

[c] The minimum levels for 2,3,7,8-TCDD and all other 16 congeners using U.S. EPA 1613 range from 5 – 50 pg/L. These MLs were developed in collaboration with BACWA as levels that were achievable by BACWA participants (BACWA letter dated April 23, 2003).

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order.

Table E-2. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Influent and Intake Water	M-INF-001 (I-1)	At any point in the bay water intake system that delivers water from Carquinez Strait to the Refinery, prior to any treatment or used for cooling or processing.
	M-INF-002 (I-2)	At any point in the wastewater conveyance system from CSD to the JTP where flow measurements are representative of the flow rates of wastewater delivered by CSD.
	M-INF-003 (P-1)	At any point in the wastewater treatment system beyond the primary waste treatment plant at the Refinery and before the surge tank at the JTP.
Effluent	M-001	At any point leading to Discharge Point 001 between the point of discharge and the point where all wastes tributary thereto are present such that the sample is representative of the effluent.
	M-002	At any point leading to Discharge Point 002 between the point of discharge and a point at which all wastes tributary to the point of discharge are present.
	M-002-D	At a point in the disinfection facilities at which adequate contact with the disinfectant has been achieved.
Storm Waters	M-003	At any point in the outfall for Waste 003 between the point of discharge and the point at which all waste tributary to that discharge is present.
	M-005	At any point in the outfall for Waste 005 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-008	At any point in the outfall for Waste 008 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-009	At any point in the outfall for Waste 009 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-011	At any point in the outfall for Waste 011 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-012	At any point in the outfall for Waste 012 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-013	At any point in the outfall for Waste 013 between the point of discharge and the point at which all waste tributary to that discharge is present.
	M-014	At any point in the outfall for Waste 014 between the point of discharge and the point at which all storm water tributary to that discharge is present.
	M-016	At any point in the outfall for Waste 016 between the point of discharge and the point at which all storm water tributary to that discharge is present.
Receiving Waters	R-001 (C-1)	At a point in Carquinez Strait, located in the boil caused by effluent from Discharge Point 001.
	R-002 (C-2)	At a point in Carquinez Strait, located in the vicinity of the diffusers for Discharge Point 002.
	R-003 (C-RE)	At a point in Carquinez Strait, located at the edge of the wharf at its easterly end.
	R-004 (C-RW)	At a point in Carquinez Strait, located at the edge of the wharf at its westerly end.

III. INFLUENT / INTAKE WATER MONITORING REQUIREMENTS

(Monitoring Location M-INF-001, M-INF-002, and M-INF-003)

The Discharger shall monitor influent / intake water as follows:

Table E-3. Influent/Intake Water Monitoring

Parameter	Monitoring Location	Units[1]	Sample Type	Minimum Sampling Frequency	Analytical Method
Flow [2]	M-INF-001 M-INF-002	MGD/MG	Continuous	Daily	meter
COD [3]	M-INF-003	mg/L and lbs/day	24-hour composite (C-24)	Daily	---

[1] Unit Abbreviations
MGD = million gallons per day
MG = million gallons
mg/L = milligrams per liter
lbs/day = pounds per day

[2] Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:
a. Daily average flow rate (MGD).
b. Daily total flow volume (MG).
c. Monthly average flow rate (MGD).
d. Monthly total flow volume (MG).
e. Average daily maximum and average daily minimum flow rates (MGD) in a month.
f. Intake duration for M-INF-001: in days and hours.

[3] Chemical oxygen demand (COD) monitoring shall be performed daily on wastewater influent to the surge tank. The Discharger may report in-house COD data instead of using a State-certified laboratory or USEPA approved method, as these data are not used for compliance monitoring.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location M-001

The Discharger shall monitor effluent at Monitoring Location M-001 as follows:

Table E-4. Effluent Monitoring (M-001)

Parameter	Units[1]	Sample Type [2]	Minimum Sampling Frequency	Required Analytical Test Methods [3]
Flow[4]	MGD/MG	Continuous	daily	
BOD_5	mg/L and lb/day	C-24	1/week	
pH[5]	Std Units	Grab	5/week	
Temperature	°C	Continuous	5/week	
Conductivity	µmhos/cm	C-24	1/month	
Arsenic	µg/L	C-24	1/month	
Copper	µg/L	C-24	1/ month	
Lead	µg/L	C-24	1/month	

Parameter	Units[1]	Sample Type [2]	Minimum Sampling Frequency	Required Analytical Test Methods [3]
Mercury [6]	µg/L	C-24/Grab	1/month	
Nickel	µg/L	C-24	1/month	
Selenium	µg/L	C-24	1/month	
Zinc	µg/L	C-24	1/month	
Cyanide [7]	µg/L	Grab	1/month	
Dioxin-TEQ [8]	µg/L	Grab	2/year	
Bis (2-ethylhexyl) phthalate	µg/L	C-24	2/year	
All other priority inorganic pollutants [9]	µg/L	[11]	2/year	
All other priority organic pollutants [10]	µg/L	[11]	1/year	
All Applicable Standard Observations	---	Visual observation	1/week	

[1] Unit Abbreviations
MGD = million gallons per day
MG = million gallons
°C = degrees Celsius
mg/L = milligrams per liter

[2] Sample Type Abbreviations
Continuous = measured continuously, and recorded and reported daily
C-24 = 24-hour composite

[3] The Discharger has the option of substituting another method for those listed in this table, but only if that method has a level of quantification below the applicable criterion or below the lowest ML listed in Appendix 4 of the SIP. This alternate method must also be USEPA approved.

[4] Flow Monitoring.
Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:
a. Daily average flow rate (MGD).
b. Daily total flow volume (MG).
c. Monthly average flow rate (MGD).
d. Monthly total flow volume (MG).
e. Average daily maximum and average daily minimum flow rates (MGD) in a month.
f. Discharge duration, in days and hours.

[5] pH. The Discharger may use continuous monitoring for pH. If pH is monitored continuously; the minimum and maximum pH values for each day shall be reported in monthly self-monitoring reports.

[6] Mercury. The Discharger shall use ultra-clean sampling methods (USEPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245), if that alternate method has a method detection limit (MDL)of 2 ng/L (0.0002 µg/L) or less.

[7] Cyanide. Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[8] Dioxin-TEQ. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the USEPA method 1613 Minimum Levels. Alternative methods of analysis must be approved by the Executive Officer. In addition to reporting results for each of the 17 congeners, the Dioxin-TEQ shall be calculated and reported using 1998 USEPA Toxicity Equivalent Factors for dioxin and furan congeners.

[9] Priority inorganic pollutants are those pollutants identified as Compound Nos. 1 – 15 by the California Toxics Rule at 40 CFR 131.38.

[10] Priority organic pollutants are those pollutants identified as Compound Nos. 16 – 126 by the California Toxics Rule at 40 CFR 131.38.

[11] The sample type and analytical method should be as described in the August 6, 2001 letter.

B. Monitoring Location M-002 (M-002D)

The Discharger shall monitor effluent at Monitoring Location M-002 (M-002-D) as follows:

Table E-5. Effluent Monitoring (M-002 or M-002-D)

Parameter	Units[1]	Sample Type[2]	Min. Sampling Frequency	Required Analytical Test Methods[3]
Flow[4]	MGD	Continuous	---	
BOD_5[5]	mg/L and lbs/day	C-24	1/week	
TSS[5]	mg/L and lbs/day	C-24	1/week	
Settleable Matter[6]	mL/L/hr	Grab	1/2 weeks	
Oil and Grease[7]	mg/L	Grab	1/week	
pH[8]	Standard Units	Grab	1/day	
Dissolved Oxygen	mg/L	Grab	1/month	
Sulfides (total and dissolved, when DO<5 mg/L)	mg/L	Grab	1/ month	
Hydrogen Peroxide Dosage[9]	mg/L and lbs/day	---	---	
Total Residual Chlorine[10]	mg/L	Continuous	Continuous/H	
Total Coliform Bacteria[11]	MPN/100 mL	Grab	3/week	
Temperature	°C	Continuous	Continuous	
Copper	µg/L	C-24	1/month	
Lead	µg/L	C-24	1/month	
Mercury [12]	µg/L	C-24/ grab	1/ month	
Cyanide [13]	µg/L	Grab	1/month	
Dioxin-TEQ [14]	µg/L	Grab	2/year	
Bis (2-ethylhexyl) phthalate	µg/L	C-24	2/year	
Chronic Toxicity [15]	TUc	C-24	[16]	
Acute Toxicity[17]	% survival	Continuous	1/2 weeks	
All other priority inorganic pollutants [18]	µg/L	[20]	2/year	
All other priority organic pollutants [19]	µg/L	[20]	1/year	
All Applicable Standard Observations	---	Visual observation	5/week	

[1] Unit Abbreviations

MGD	=	million gallons per day
°C	=	degrees Celsius
mg/L	=	milligrams per liter
µg/L	=	micrograms per liter
MPN/100 mL	=	most probable number per 100 milliliters
kg/d	=	kilograms per day
mls/L/hr	=	milliliters per liter per hour

[2] Sample Type Abbreviations

Continuous	=	measured continuously, and recorded and reported daily
C-24	=	24-hour composite

[3] The Discharger has the option of substituting another method for those listed in this table, but only if that method has a level of quantification below the applicable criterion or below the lowest ML listed in Appendix 4 of the SIP. This alternate method must also be USEPA approved.

[4] Flow Monitoring.
Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:

a. Daily average flow rate (MGD).
b. Daily total flow volume (MG).
c. Monthly average flow rate (MGD).
d. Monthly total flow volume (MG).
e. Average daily maximum and average daily minimum flow rates (MGD) in a month.

[5] BOD and TSS. Sampling of BOD_5 and TSS is required once every week when there is Refinery process wastewater discharging into the JTP..

[6] Settable Matter. Monitoring is required when there is process wastewater discharging into the JTP.

[7] Oil & Grease Monitoring: Monitoring of oil and grease is required once every two weeks when there is process wastewater discharging into the JTP.. Each Oil & Grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the plant operating hours of the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite sample for extraction and analysis.

[8] pH. The Discharger may use continuous monitoring for pH. If pH is monitored continuously; the minimum and maximum pH values for each day shall be reported in monthly self-monitoring reports.

[9] Hydrogen Peroxide. Hydrogen peroxide dosage shall be reported in mg/L and lbs/day on every occurrence when it is manually added to the surge tank as a result of organic overload. For each occurrence lasting more than one calendar day, the daily dosage (lbs) of hydrogen peroxide shall be reported in that months self monitoring report.

[10] Chlorine residual. The Discharger may record discrete readings from the continuous monitoring every hour on the hour, and report, on a daily basis, the maximum concentration observed following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

[11] The total coliform bacteria sampling location used for monitoring compliance with the coliform limit is M-002-D.

[12] Mercury. The Discharger shall use ultra-clean sampling methods (USEPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245), if that alternate method has a method detection limit (MDL) of 2 ng/L (0.002 µg/L) or less.

[13] Cyanide. Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[14] Dioxin-TEQ. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the USEPA method 1613 Minimum Levels. Alternative methods of analysis must be approved by the Executive Officer. In addition to reporting results for each of the 17 congeners, the Dioxin-TEQ shall be calculated and reported using 1998 USEPA Toxicity Equivalent Factors for dioxin and furan congeners.

[15] Chronic Toxicity Monitoring. Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V.B of this MRP.

[16] Chronic Toxicity Monitoring Frequency. The Discharger shall perform a screening phase study to identify a most sensitive species. If no chronic toxicity is observed in the screening phase study, the Discharger is no longer required to perform routine monitoring during the permit term. If chronic toxicity is observed during the screening phase study, in addition to accelerated monitoring on a monthly basis, the routine monitoring frequency shall be once per year.

[17] Acute Toxicity Bioassay. Monitoring of the bioassay water shall include, on a daily basis during the test, the parameters specified in the U.S. EPA-approved method, such as pH, dissolved oxygen, ammonia nitrogen, conductivity, and temperature. These results shall be reported. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

[18] Priority inorganic pollutants are those pollutants identified as Compound Nos. 1 – 15 by the California Toxics Rule at 40 CFR 131.38.

[19] Priority organic pollutants are those pollutants identified as Compound Nos. 16 – 126 by the California Toxics Rule at 40 CFR 131.38.

[20] The sample type and analytical method should be as described in the August 6, 2001 letter.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Whole Effluent Acute Toxicity

Compliance with whole acute toxicity requirements of this Order shall be achieved in accordance with the following:

1. Acute toxicity of effluent limits shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through bioassays.

2. One of the following test species must be used: fathead minnow (*Pimephales promelas*) or rainbow trout (*Oncorhynchus mykiss*).

3. All bioassays shall be performed according to 40 CFR 136, currently the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and

Marine Organisms," 5th Edition. Exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP.)

4. If specific identifiable substances in the discharge can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer must be obtained to authorize such an adjustment.

5. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

a. **Screening Phase Study.** The Discharger shall submit a screening phase study plan according to **Attachment E-1** of the MRP to the Executive Officer within 120 days from the permit effective date. The Discharger shall initiate the study within 30 days of Executive Officer approval or the Discharger may proceed with the study if the Executive Officer has not commented on the plan after 45 days, and complete the screening phase study within one year from permit effective date.

b. **Sample Collection.** The Discharger shall collect 24-hour composite samples of the treatment facility's effluent at the compliance point specified in Table E-5 of this MRP, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

c. **Routine Monitoring.** Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test species identified by the screening phase testing. The Discharger shall conduct routine monitoring with the species approved by the Executive Officer.

If the Discharger uses two or more species, after at least twelve test rounds, the Discharger may request the Executive Officer to decrease the required frequency of testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TUc values specified in the effluent limitations was never observed using that test species.

d. **Conditions for Accelerated Monitoring.** The Discharger shall accelerate the frequency of monitoring to monthly, or as otherwise specified by the Executive Officer, after exceeding a single sample maximum of 10 TUc.

e. **Methodology.** Sample collection, handling and preservation shall be in accordance with USEPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

f. **Dilution Series.** The Discharger shall conduct tests at 100%, 50%, 25%, 10%, and 5%, and 2.5%. The "%" represents percent effluent as discharged.

2. Chronic Toxicity Reporting Requirements

a. **Routine Reporting.** Toxicity test results for the current reporting period shall include the following, at a minimum, for each test.

(1) Sample date(s)

(2) Test initiation date

(3) Test species

(4) End point values for each dilution (e.g., number of young, growth rate, percent survival)

(5) NOEC value(s) in percent effluent

(6) IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) in percent effluent

(7) TUc values (100/NOEC, 100/IC25, and 100/EC25)

(8) Mean percent mortality (+ s.d.) after 96 hours in 100% effluent

(9) NOEC and LOEC values for reference toxicant test(s)

(10) IC50 or EC50 value(s) for reference toxicant test(s)

(11) Available water quality measurements for each test (i.e., pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

b. **Compliance Summary.** The results of the chronic toxicity testing shall be provided in the most recent self monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include the items listed under V.B.2.a above.

3. Chronic Toxicity Reduction Evaluation (TRE)

a. **Generic TRE Work Plan.** To be prepared for responding to toxicity events, the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

b. **Specific TRE Work Plan.** Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. **Initiate TRE.** Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed the trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:

   i. Tier 1 consists of basic data collection (routine and accelerated monitoring).
   ii. Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
   iii. Tier 3 consists of a toxicity identification evaluation (TIE).
   iv. Tier 4 consists of evaluation of options for additional effluent treatment processes.
   v. Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
   vi. Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with Effluent Limitations Section IV.6.a).

f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.

g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be

successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not applicable.

VIII. STORM WATER MONITORING REQUIREMENTS

The Discharger shall monitor storm water at Monitoring Locations M-003 through M-016 as follows.

Table E-6. Storm Water Monitoring (M-003 through M-016)

Sampling Stations	E-003, E-005, E-008, E-009, E-011, E-013, E-014, and E-016
Type of Samples [1]	Grab
Flow Rate (MGD) [2]	2/year
pH (Standard unit)	2/year
Total suspended solids (mg/L)	2/year
Total organic carbon (mg/L)	2/year
Conductivity (mhos/cm)	2/year
All applicable standard observations [3]	1/month

[1] Storm water discharges shall be sampled during the first 30 minutes of the first daylight storm event which occurs during scheduled operating periods and which is preceded by at least 3 days of dry weather. If sampling during the first 30 minutes if impractical, samples can be taken during the first one hour of discharge, and the discharger shall explain in the monitoring report why the grab sample(s) could not be taken in the first 30 minutes.

A storm event is defined as a continuous or semi-continuous period of rainfall which produces significant storm water discharge. Significant storm water discharge is a continuous discharge of storm water for approximately one hour or more.

The Discharger may apply to the Executive Officer for reduced number of storm water monitoring locations if the discharger can establish and document that storm water discharges from different locations are substantially identical.

[2] Measure or estimate the total volume of storm water discharge from each station for the storm event sampled. Estimates shall be determined from the amount of rainfall and the area of drainage multiplied by a drainage factor satisfactory to the Executive Officer. The areas and drainage factors shall be proposed by the Discharger in the SWPPP.

[3] See Part A Section C.3.a. Also, storm water observations during the dry period (May 1 through September 30) may be reduced to twice during this five month period.

IX. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Surface Water Monitoring.

1. The Discharger shall continue to participate in the Regional Monitoring Program, which involves collection of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring (including sediment) required by this Order.

2. With each annual self-monitoring report, the Discharger shall document how it complies with Receiving Water Limitations V.A. This may include using discharge characteristics (e.g., mass balance with effluent data and closest RMP station), receiving water data, or a combination of both.

B. Ground Water Monitoring.

Not applicable.

X. LEGENDS FOR TABLES

Sampling Frequency		Legend
1/day	=	Daily
5/week	=	Five days per week
2/week	=	Two days per week
3/week	=	Three days per week
1/week	=	One day per week
1/2 weeks	=	Once every two weeks
1/month	=	Once per month
1/quarter	=	Once per quarter
1/5 years	=	Once every five years
2/year	=	Two times per year
1/year	=	Once every year

XI. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM (ATTACHMENT G)

The following modifications to Part A of the Self-Monitoring Program (**Attachment G**) supersede the requirements of Part A of the Self-Monitoring Program.
Add to the end of Section C.5 as follows:

5. Bottom Sediment Samples and Sampling and Reporting Guidelines

   b. Sediment sampling and reporting requirement is satisfied through participation in the Regional Monitoring Program.

Modify Section F.4 as follows:

Self-Monitoring Reports

[Add the following to the beginning of the first paragraph]

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices.

[And add at the end of Section F.4 the following:]

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include a formal request to invalidate the measurement; the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Water Board staff and will be based solely on the documentation submitted at that time.

h. Reporting Data in Electronic Format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) Reporting Method: The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Permit has been modified to include.

2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in this MRP), an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4.a-g. above. However, until USEPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

3) Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual

report electronically, but a hard copy of the annual report shall be submitted according to Section XIII.

XII. OTHER MONITORING REQUIREMENTS

Regional Monitoring Program

The Discharger has agreed to continue to participate in the Regional Monitoring Program, which involves collection of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order.

XIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (**Attachment D and G**) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit self-monitoring reports in accordance with the requirements described below.

2. The Discharger shall submit monthly Self Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due 30 days after the end of each calendar month.

C. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Effective date of permit	All	First day of second calendar month following month of sampling
1/day	Effective date of permit	Daily	First day of second calendar month following month of sampling
5/week	Effective date of permit	Any five days during a week at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling
3/week	Effective date of permit	Any three days during a week at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
2/week	Effective date of permit	Any two days during a week at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling
1/week	Effective date of permit	Once per week at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling
1/2 weeks	Effective date of permit	Once during a two-week period at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling
1/month	Effective date of permit	Any day in a calendar month at a time when the Refinery process wastewater is being treated at the JTP	First day of second calendar month following month of sampling
1/quarter	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31 (Any one day at a time when the Refinery process wastewater is being treated at the JTP)	May 1 August 1 November 1 February 1
2/year (once-through cooling water and wastewater discharge)	Effective date of permit	Once during wet season (typically November 1 through April 30), once during dry season (typically May 1 through October 31)	June 1 December 1
2/year (storm water)	Effective date of permit	Two times during the wet season when rains, with the first sampling on the first storm event of the season.	Annually by July 1
1/year	Effective date of permit	January 1 through December 31 For priority pollutant monitoring: Alternate between one year during wet season and the following year during dry season (typically May 1 through October 31).	February 1
1/5 years	Effective date of permit	Once during permit term	First day of second calendar month following month of sampling

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. The Dischargers shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.

6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (**Attachment D** and **G**), to the address listed below:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   ATTN: NPDES Permit Division

8. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any

discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supercede.

C. Discharge Monitoring Reports (DMRs)

1. As described in Section XIII.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (**Attachment D**). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   State Water Resources Control Board
   Discharge Monitoring Report Processing Center
   Post Office Box 671
   Sacramento, CA 95812

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

D. Other Reports

Annual Reports. By February 1st of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (**Attachment G**).

ATTACHMENT E-1 – CHRONIC TOXICITY – DEFINITIONS OF TERMS AND SCREENING PHASE REQUIREMENTS

CHRONIC TOXICITY

DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

I. DEFINITION OF TERMS

A. **No observed effect level** (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. **Effective concentration** (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

C. **Inhibition Concentration** (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. **No observed effect concentration** (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. CHRONIC TOXICITY SCREENING PHASE REQUIREMENTS

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;

2. Two stages:

a. **Stage 1** shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and

b. **Stage 2** shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls; and

4. Concurrent reference toxicant tests.

A. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

Table E-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Test Species	Scientific Name	Effect	Duration	Reference
alga	*(Skeletonema costatum) (Thalassiosira pseudonana)*	growth rate	4 days	1
red alga	*(Champia parvula)*	number of cystocarps	7-9 days	3
Giant kelp	*(Macrocystis pyrifera)*	percent germination; germ tube length	48 hours	2
abalone	*(Haliotis rufescens)*	abnormal shell development	48 hours	2
Oyster mussel	*(Crassostrea gigas) (Mytilus edulis)*	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins (sand dollar - Dendraster excentricus	*Strongylocentrotus purpuratus, S. franciscanus);*	percent fertilization	1 hour	2
shrimp	*(Americamysis bahia)*	percent survival; growth	7 days	3
shrimp	*(holmesimysis costata)*	percent survival; growth	7 days	2
topsmel	*(Atherinops affinis)*	percent survival; growth	7 days	2
silversides	*(Menidia beryllina)*	larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. USEPA/600/R-95/136. August 1995

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms as specified in 40CFR 136. Currently, this is USEPA/600/4-90/003, July 1994. Later editions may replace this version.

Table E-2. Critical Life Stage Toxicity Tests For Fresh Waters

Species	Scientific Name	Effect	Test Duration	References
fathead minnow	*(Pimephales promelas)*	survival growth rate	7 days	4
water flea	*(Ceriodaphnia dubia)*	survival; number of young	7 days	4
alga	*(Selenastrum capricornutum)*	cell division rate	4 days	4

Toxicity Test Reference:

Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms as specified in 40CFR 136. Currently, this is the third edition, USEPA/600/4-91/002, July 1994. Later editions may replace this version.

Table E-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†):	0	1 or 2	3
Marine/Estuarine:	4	3 or 4	0
Total number of tests:	4	5	3

† The fresh water species may be substituted with marine species if:

1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or

2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.

Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 071006001
Dischargers	C&H Sugar Company, Inc. (C&H) Crockett Community Services District (CSD)
Name of Facility	C&H Sugar Refinery, Joint C&H-CSD Philip F. Meads Water Treatment Plant (JTP) and its collection system
Facility Address	830 Loring Avenue
	Crockett, CA 94525
	Contra Costa County
Facility Contact, Title and Phone	Elizabeth M. Crowley, Environmental Compliance Manager, C&H Sugar Company, 510-787-4352 Kent Peterson, General Manager, Crockett Community Services District, 510-787-2992
Authorized Person to Sign and Submit Reports	Elizabeth M. Crowley, Environmental Compliance Manager, C&H Sugar Company, 510-787-4352 Kent Peterson, General Manager, Crockett Community Services District, 510-787-2992
Mailing Address	C&H - 830 Loring Avenue, Crockett, CA 94525 CSD - P.O. Box 578, Crockett, California 94525
Billing Address	830 Loring Avenue, Crockett, CA 94525
Type of Facility	Sugar Processing / Privately owned wastewater treatment plant
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	No
Reclamation Requirements	No
Facility Permitted Flow	35 MGD for once-through cooling water discharge through 001; 1.78 MGD for treated wastewater discharge through 002
Facility Design Flow *	35 MGD for once-through cooling water discharge through 001; 1.78 MGD for treated wastewater discharge through 002
Watershed	Suisun Basin
Receiving Water	Carquinez Strait within Northern San Francisco Bay
Receiving Water Type	Surface Water

* The basis for 35 MGD is from James Montgomery, 1973; 1.78 MGD is based on Operation and Maintenance Manual, Engineering Science.

A. C&H Sugar Company, Inc. (C&H) is currently discharging under Order No. 00-025 (NPDES Permit No. CA0005240) from several locations within the C&H Sugar Company, Inc. Refinery. The Refinery discharges once-through cooling waters and condensed

vapors, untreated, at Discharge Point 001, as well as treated wastewater [sugar refining wastes and domestic wastewater from the Crockett Community Services District (CSD)] at Discharge Point 002, and storm waters from Discharge Points 003 through 016, into Carquinez Strait. The Dischargers (collectively C&H and CSD) are subject to a Joint Use Agreement, which allows the CSD to discharge to and make use of the wastewater treatment facility located on the grounds of the Refinery. The wastewater treatment facility, which discharges through Discharge Point 002, is owned jointly by C&H and the CSD; and it is operated by C&H.

B. The Refinery and CSD discharge wastewater to Carquinez Strait, a water of the United States located in North San Francisco Bay.

C. The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its Waste Discharge Requirements (WDRs) and NPDES permit on October 15, 2004. Order No. 00-025 (previous permit or previous Order), which was adopted on April 19, 2000, automatically continued in effect after its expiration date on April 19, 2005.

II. FACILITY DESCRIPTION

C&H owns and operates a sugar refinery that processes raw cane sugar at an average melt rate of 3,300 tons per day over 260 operating days per year. The Refinery has an average melt rate capacity of 3,600 tons per day. The Refinery typically operates on a 7-day operating cycle, with 5 days of operation followed by 2 days of down time, and it delivers both crystalline and liquid refined sugars from the Refinery by truck and rail. The Refinery may go back to its old practice which ran on a 14-day cycle, with 10 days on and 4 days down.

The Refinery is located on land owned by the California State Lands Commission. The Refinery, including the wastewater treatment systems, is operated by C&H. The wastewater treatment plant is known as the Philip F. Meads Water Treatment Plant or Joint Treatment Plant (JTP), as it is co-owned by and subject to a joint use agreement between C&H Sugar and the CSD.

A. Description of Wastewater Treatment

This Order regulates discharges from Discharge Points 001 and 002. Wastewater discharged at Discharge Point 001 is untreated once-through cooling water from barometric condensers on vacuum pans, evaporators, and turbine generators. Wastewater discharged at Discharge Point 002 is treated effluent from the JTP, a biological treatment plant that receives refinery process wastewaters as well as pretreated domestic wastewater conveyed from the CSD. Refinery process wastewater (char washings, scum and filter aid slurries, refinery equipment washdowns, rail car washings, and contaminated storm water runoff from process areas), with the exception of char filter wash water, is pH adjusted and clarified, before being combined with char process wash water and pumped to the JTP.

Process wastewaters combine with flow from the CSD at the JTP in a surge basin that precedes three one-million-gallon capacity aeration basins. As process wastes typically have high carbohydrate and low nutrient content, phosphoric acid and urea are added to

enhance biological treatment. Wastewater from the aeration basins is clarified by two dissolved air flotation units. Clarified wastewater is disinfected using sodium hypochlorite and dechlorinated with sodium bisulfite before being discharged to Carquinez Strait. Solids removed during wastewater treatment, are dewatered on a belt filter and trucked off-site for disposal as soil amendment.

The annual average chemical oxygen demand (COD) concentration in the primary-treated refinery wastewater is approximately 3,930 mg/l. If conditions of high COD loading and low oxygen supply occur, they will result in unsatisfactory bioprocess performance. At times, floating floc has been observed at the sampling location in the chlorination basin. It is a possibility that these are the result of poor clarifier performance at times of heavy COD loads.

B. Description of Intake Water Structure

Water withdrawn from the Carquinez Strait enters the cooling water intake structure through a 10-foot wide opening with 0.5 inch vertical steel bars spaced 4 inches apart and extending from the bottom to above the water line. Water is filtered through a single traveling screen with 0.38 inch square mesh opening and effective area at Mean Low Low Water (MLLW) of 111 feet. The screen, manufactured by Envirex (model 62430) was replaced in 1993. Water passes through the intake screen before reaching the 48 inch diameter pipe leading to the pump room. Previous 316(b) studies indicate that the C&H cooling water intake structure reflects the best available technology for minimizing adverse environmental impacts.

C. Discharge Points and Receiving Waters

This Order regulates discharge from the Refinery through Discharge Point 001 and discharge from the wastewater treatment plant through Discharge Point 002, as well as storm water discharges through Discharge Points 003 through 016 as briefly described below.

Table F-2. Discharge Points

C&H Sugar Company Discharge Points			
No.	**Latitude**	**Longitude**	**Description**
001	38° 03′ 27″	122° 13′ 06″	Discharge consists of approximately 22.5 MGD of non-contact, once-through cooling water from the Refinery's barometric condenser, condensed vapors from vacuum pans, cooling waters from evaporators and steam turbine heat exchangers. The point of discharge is a deep-water diffuser that extends approximately 200 feet offshore into Carquinez Strait to a depth of 47 feet.
002	38° 03′ 30″	122° 13′ 28″	Discharge consists of approximately 0.93 MGD of treated wastewaters from the treatment plant. Refinery process wastewaters, which account for approximately 60 percent of the total discharge, include bone char washings, scum and filter aid slurries, refinery equipment wash down, rail car washings, and storm water runoff from process areas. The CSD's contribution averages 0.33 MGD but can range as high as 3.3 MGD during wet weather periods. The point of discharge is a deep-water multi-port diffuser located directly below the Carquinez Bridge, 637 feet west of the refinery plant.

C&H Sugar Company Discharge Points			
No.	**Latitude**	**Longitude**	**Description**
003	38°03'27"	122°13'03"	Discharge consists of storm water runoff from an area between the boiler house and Bankers Warehouse No. 3, as well as from boiler house roof drains.
005	38°03'27"	122°13'11"	Discharge consists of storm water runoff from an area of approximately 216,500 square feet located centrally in the Refinery yard and from an area south of the railroad tracks on both sides of the extension of Rolph Avenue. Runoff from the refinery combines with street runoff from Crockett and discharges to Carquinez Strait via a shallow collection point.
006	38°03'27"	122°13'31"	Discharge consists of storm water runoff from a large plant area south of the railroad tracks used for product staging prior to loading. Discharge occurs to Carquinez Strait via a pipe under the railroad tracks to a drainage on the south side of the warehouse yard.
007	38°03'27"	122°13'18"	Discharge consists of storm water runoff from community areas and hills as well as from a small area on the fringe of the truck staging area and occurs to Edwards Creek at a point before the creek enters the culverts extending under the railroad tracks to Carquinez Strait.
008	38°03'27"	122°13'11"	Discharge consists of storm water runoff from an area of approximately 19,000 square feet located at the western portion of the Refinery yard.
009	38°03'26"	122°12'46"	Discharge consists of storm water runoff from the refinery's raw sugar loading dock, an area of approximately 30,625 square feet. Discharge occurs to Carquinez Strait via an oil water separator located at the eastern end of the dock.
011	38°03'27"	122°13'11"	Discharge consists of storm water runoff from an area of approximately 2,500 square feet north of the Herreshoff Kiln.
012	38°03'27"	122°13'11"	Discharge consists of storm water runoff from an area of approximately 1,550 square feet located to the east of the canopied product and material storage area in the Refinery yard.
013	38°03'27"	122°13'15"	Discharge consists of storm water runoff from an area of approximately 15,690 square feet south of Warehouse No. 1 at the western side of refinery.
014	38°03'22"	122°13'15"	Discharge consists of storm water runoff from a refinery yard area of approximately 74,320 square feet adjacent to the primary waste treatment plant and a hazardous waste storage area.
016	38°03'19"	122°13'36"	Discharge consists of storm water runoff from undeveloped areas near the wastewater treatment plant as well as community streets and hills adjacent to the JTP.

D. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Effluent Limitations.

Discharge Points 001 and 002

- Total BOD_5 (lbs/day) discharged at Discharge Points 001 and 002 shall not exceed the following limitations, determined by summing contributions (lbs) from the sugar Refinery and the CSD.

Table F-3. Limitations of Order No. 00-025

BOD_5 Limitation		C&H Sugar		CSD
Monthly Average (lbs/day)	=	2,417	+	[30 mg/L x flow (MGD) x 8.34 (lbs/gal)]
Daily Maximum (lbs/day)	=	6,688	+	[60 mg/L x flow (MGD) x 8.34 (lbs/gal)]

- Discharges from Discharge Points 001 and 002 shall not have a pH value less than 6.0 nor greater than 9.0.

Discharge Point 002

- Total TSS (lbs/day) discharged at Discharge Points 002 shall not exceed the following limitations, determined by summing contributions (lbs) from the sugar refinery and the CSD.

Table F-4. Limitations of Order No. 00-025

TSS Limitation		C&H Sugar		CSD
Monthly Average (lbs/day)	=	506	+	[30 mg/L x flow (MGD) x 8.34 (lbs/gal)]
Daily Maximum (lbs/day)	=	1,517	+	[60 mg/L x flow (MGD) x 8.34 (lbs/gal)]

- The median of 5 consecutive samples of effluent collected at Discharge Point 002 shall not exceed 240 MPN (total coliform bacteria)/100 mL; and no single sample shall exceed 10,000 MPN/100 mL.

- Discharges from Discharge Point 002 shall not have a total residual chlorine concentration greater than 0.0 mg/L.

- Discharges from Discharge Point 002 shall not exceed the following effluent limitations for settleable matter.

Table F-5. Limitations of Order No. 00-025

Effective Dates	Monthly Average	Daily Maximum
4/19/2000 – 4/18/2005	10 mL/L/hr	20 mL/L/hr
4/19/2005 – 4/18/2010	1.0 mL/L/hr	2.0 mL/L/hr

- Discharges from Discharge Point 002 shall not exceed the following effluent limitation for acute toxicity.

  The survival of test fishes in 96-hour flow through bioassays of Waste 002, as discharged, shall be an eleven sample median value of not less than 90 percent survival; and an eleven sample 90^{th} percentile value of not less than 70 percent survival.

- Discharges from Discharge Point 002 shall not exceed the following final limitations for lead and PAHs.

Table F-6. Limitations of Order No. 00-025

Pollutant	Monthly Average	Daily Maximum
Lead	---	50.3 µg/L
PAHs	0.49 µg/L	150 µg/L

- Discharges from Discharge Point 002 shall not exceed the following interim limitations for copper, mercury, and nickel.

Table F-7. Limitations of Order No. 00-025

Pollutant	Monthly Average	Daily Maximum	Running Annual Average	Monthly Average Mass Loading
Copper	---	37 µg/L	1.84 lbs/month	---
Mercury	0.21 µg/L	1.0 µg/L	0.04 lbs/month	---
Nickel	---	53 µg/L	---	1.5 lbs/month

2. Effluent Characterization.

Effluent discharged at Discharge Points 001 and 002 is characterized by the Discharger in its ROWD as follows.

Table F-8. Effluent Characterization

Parameter	Units	Max Daily Value	Max 30 Day Average Value	Long Term Average Value
Discharge Point 001				
Flow	MGD	40.2	24.4	21.7
BOD	mg/L	140	51	14.6
	lbs/day	39,100	13,700	3,600
pH	SU	6.3 – 8.0	7.4 – 7.7	--
Discharge Point 002				
Flow	MGD	1.65	0.77	0.69
BOD	mg/L	16	7	6
	lbs/day	108	92	39
TSS	mg/L	24	17	11
	lbs/day	180	101	70
pH	SU	6.8/8.4 (low/high)	7.4/7.6 (low/high)	--

E. Compliance Summary

The following table summarizes incidents of non-compliance with effluent limitations for Discharge Points 001 and 002 during the previous permit term. If parameters/pollutants do not appear in the table, then no incidents of non-compliance were reported during the permit term.

Table F-9. Compliance Summary

Parameter	Number of Incidents of Non-Compliance				
	2001	2002	2003	2004	2005
Discharge Point 001 and 2 (combined)					
BOD_5 [1]	4	4	3	8	4
Discharge Point 002					
Total Residual Chlorine		2	1		
Total Coliform Bacteria		5			6
Mercury				2	
Nickel		1	2		

[1] BOD5 limitation of Order No. 00-025 was a single limitation that limited the total (combined) mass (lbs) of BOD_5 discharged from Discharge points 001 and 002.

F. Planned Changes

N/A

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

1. This Order is issued pursuant to CWA Section 402 and implementing regulations adopted by the USEPA and CWC Chapter 5.5, Division 7. It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4 for discharges that are not subject to regulation under CWA Section 402.

2. NPDES Permit/USEPA concurrence are based on 40 CFR 123.

3. Order expiration and reapplication are based on 40 CFR 122.46 (a).

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with CWC Section 13389.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan for the San Francisco Basin* (Region 2) (hereinafter the Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Regional Water Board amended the Basin Plan

(Resolution No. R2-2004-0003) on January 21, 2004. The State Water Board and the Office of Administrative Law approved these amendments on July 22, 2004, and October 4, 2004, respectively. The USEPA gave final approval to the amendment on January, 5, 2005.

2. **Thermal Plan.** The State Water Board adopted a Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters and establishes specific limitations for thermal wastes (cooling water and industrial process water used for the purpose of transporting waste heat) and elevated temperature wastes (liquid, solid, or gaseous material including thermal waste discharged at a temperature higher than the natural temperature of receiving water), which are applicable to the C&H Sugar Company facility.

   The Thermal Plan establishes the following limitations for existing discharges of elevated temperature waste and thermal waste to estuarine environments.

Table F-10. Thermal Plan Requirements

Thermal Plan Section No.	Limitation
5. A. (1)	Elevated temperature waste shall comply with the following:
a	The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
b	Elevated temperature waste discharges, either individually or combined with other discharges, shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperatures, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
c	No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
d	Additional limitations shall be imposed when necessary to assure protection of beneficial uses.
5. A. (2)	Thermal waste discharges shall comply with the provisions of 5. A. (1), above, and in addition, the maximum temperature of thermal waste discharges shall not exceed 86°F.

   Based on State Board Resolution No. 75-72, issued on July 17, 1975 and approved by USEPA on September 2, 1975, discharges from Discharge Points 001 and 002 are exempt from Section Nos. 5.A.(1). a. and 5.(A).(2) above.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, amending it on May 4, 1995 and November 9, 1999, and adopted the CTR on May 18, 2000, amending it on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to discharges from this facility

4. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP

became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The State Water Board amended the SIP on February 24, 2005, and the amendments became effective on May 31, 2005. The SIP includes procedures for determining the need for and calculating water quality-based effluent limitations (WQBELs), and requires dischargers to submit data sufficient to do so.

5. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. [40 C.F.R 131.21; 65 Fed. Reg. 24641 (April 27, 2000)] Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

6. **Stringency of Requirements for Individual Pollutants.** This Order contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. Restrictions on these pollutants are specified in federal regulations and are no more stringent than required by the CWA. Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21 (c) (1). The remaining water quality objectives and beneficial uses implemented by this Order [arsenic, cadmium, chromium (VI), copper (fresh water), lead, nickel, silver (1-hour), and zinc] were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21 (c) (2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

7. **Antidegradation Policy.** NPDES regulations at 40 CFR 131.12 require that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, incorporating the requirements of the federal antidegradation policy and requiring that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in Section IV.G of this Fact Sheet the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16.

8. **Anti-Backsliding Requirements.** CWA Sections 402 (o) (2) and 303 (d) (4) and NPDES regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. As discussed in detail in the Fact Sheet (Attachment F), the prohibitions, limitations, and conditions of this Order are consistent with applicable federal and State anti-backsliding requirements.

9. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the Regional Water Boards to require technical and monitoring reports. The MRP, included as Attachment E to this Order, establishes monitoring and reporting requirements to implement federal and State requirements. The MRP may be amended by the Executive Officer pursuant to USEPA regulation 40 CFR 122.62, 122.63, and 124.5.

D. Impaired Water Bodies on CWA 303 (d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State pursuant to CWA section 303(d) - specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing Carquinez Strait include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303 (d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated waste load allocations (WLAs).

1. **Total Maximum Daily Loads.** The Regional Water Board plans to adopt TMDLs for pollutants on the 303 (d) list in the San Francisco Bay within the next ten years. Future review of the 303 (d)-list for the Bay may result in revision of the schedules, provide schedules for other pollutants, or both.

2. **Waste Load Allocations.** TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving applicable water quality standards for the impaired waterbodies. Final effluent limitations for impairing pollutants for this Discharger will ultimately be based on WLAs that are derived from the TMDLs.

3. **Implementation Strategy.** The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below.

a. **Data Collection.** The Regional Water Board has provided dischargers to the Bay an option to, collectively, assist in developing and implementing analytical techniques capable of detecting 303 (d)-listed pollutants to, at least, their respective levels of concern or to levels of the applicable WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize pollutant loads from their facilities into water-quality limited receiving waters. Results will be used in the development of TMDLs and may be used to update or revise the 303 (d) list or to change WQOs/WQC for the impaired waterbodies, including Carquinez Strait within San Francisco Bay.

b. **Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

E. Other Plans, Polices and Regulations

N/A

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations; and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR 122.44 (a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44 (d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, three options exist to protect water quality: 1) 40 CFR 122.44 (d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304 (a); 2) proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows:

A. Discharge Prohibitions

1. **Prohibition III. A (No discharge other than as described in this Order).** This prohibition is the same as in the previous permit. This prohibition is based on California Water Code section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the ROWD, and subsequently in the Order, are prohibited.

2. **Prohibition III. B (No discharge except where a minimum initial dilution of 10 to 1 is provided).** This prohibition is the same as the previous permit and is based on Discharge Prohibition No. 1 from Table 4-1 of the Basin Plan, which prohibits discharges that do not receive a minimum 10:1 initial dilution. Furthermore, this Order allows a 10:1 dilution credit in the calculation of some water quality based effluent limitations, and these limits would not be protective of water quality, if the discharge did not actually achieve a 10:1 minimum initial dilution.

3. **Prohibition III. C (No discharge containing algaecides or anti-fouling additives at Discharge Point 001).** This prohibition is retained from Order No. 00-025.

4. **Prohibition III. D (No bypasses except under the conditions at 40 CFR 122.41(m)(4)(i)(A), (B) and (C)):** This prohibition is based on 40 CFR 122.41(m)(4).

5. **Discharge Prohibition III.E. (No sanitary sewer overflows (SSO) to waters of the United States)**: The Discharge Prohibition No. 15 from Table 4-1 of the Basin Plan, and the Clean Water Act prohibits the discharge of wastewater to surface waters except as authorize under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards. (33U.S.C. §1311(b)(1)(B) and (C).) Thus, an SSO that results in the discharge of raw sewage, or sewage not meeting secondary treatment, to surface waters is prohibited under the Clean Water Act and the Basin Plan.

B. Technology-Based Effluent Limitations for Discharge Point 001 and Discharge Point 002

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

Pursuant to Section 306 (b) (1) (B) of the CWA, U.S. EPA has established standards of performance (technology-based limitations and standards) for the crystalline cane sugar refining industry at 40 CFR 409 Subpart B. These regulations apply to the Discharger's facility and were used to develop limitations and requirements of Order No. 00-025. (See Finding 25 of Order No. 00-025.)

2. Applicable Technology-Based Effluent Limitations

a. Effluent Guidelines for Crystalline Cane Sugar Refinery.

The following specific standards of performance for existing facilities, representing the best practicable control technology currently available and the best conventional pollutant control technology, as established at 40 CFR 409 Subpart B, are applicable to the C&H Sugar Company facility.

40 CFR 409.22 (a). Any crystalline cane sugar refinery discharging both barometric condenser cooling water and other process waters shall meet the following limitations. The BOD_5 limitation is determined by the addition of the net BOD_5 attributed to the barometric condenser cooling water to that amount of BOD_5 attributed to the process water. The TSS limitation is that amount of TSS attributed to the treated process water. Where the barometric condenser cooling water and process water streams are mixed and impossible to measure separately prior to discharge, the values should be considered net.

Table F-11. Technology-Based Requirements in 40 CFR 409.22(a)

Effluent Characteristic	Effluent Limitation	
	Daily Maximum	30-Day Average
BOD_5 (lbs/ton [a])	2.38	0.86
TSS (lbs/ton [a])	0.54	0.18
pH	6.0 – 9.0	

[a] lbs BOD_5 or TSS per ton of melt (raw sugar contained within aqueous solution at the beginning of the process for production of refined cane sugar).

40 CFR 409.22 (b). Any crystalline cane sugar refinery discharging barometric condenser cooling water only should be required to achieve the following net limitations.

Table F-12. Technology-Based Requirements in 40 CFR 409.22(b)

Effluent Characteristic	Effluent Limitation	
	Daily Maximum	30-Day Average
BOD_5 (lbs/ton [a])	2.04	0.68

[a] lbs BOD_5 or TSS per ton of melt (raw sugar contained within aqueous solution at the beginning of the process for production of refined cane sugar).

Effluent standards for process wastewater only. The technology-based standards specified in 40 CFR 409 (a) and (b) as described above are interpreted for discharging process wastewater only, as shown in Table F-14. These technology-based standards are the difference between those specified in 40 CFR 409.22(a) and (b).

Table F-13. Technology-Based Requirements for Process Wastewater

Effluent Characteristic	Effluent Limitation	
	Daily Maximum	30-day Average
BOD_5 (lbs/ton) [a]	0.34	0.18
TSS (lbs/ton)	0.54	0.18
pH	6.0 – 9.0	

b. Technology-Based Effluent Limitations for Discharge Points 001 and 002

(1) Discharge Point 001

The technology-based standards described above are interpreted to require the following effluent limitations for Discharge Point 001 (as a discharge of barometric cooling water only).

Table F-14. Technology-Based Limitations (001)

Constituent	Units	Effluent Limitations	
		Maximum Daily	Monthly Average
BOD_5	lbs/day	6,700	2,200
pH	pH units	6.0 – 9.0 at all times	

The BOD_5 effluent limitations are based on an average melt rate of raw cane sugar of 3,300 tons per day:

BOD_5 maximum daily limit (lbs/day) = 2.04 lbs/ton * 3,300 tons/day
= 6,732 (lbs/day)

BOD_5 monthly average limit (lbs/day) = 0.68 lbs/ton * 3,300 tons/day
= 2,244 (lbs/day)

The final mass loading limits were rounded to two significant figures, as shown in Table F-15.

(2) Discharge Point 002

Discharge Point 002 contains both process wastewater from the Refinery and municipal wastewater from CSD. The technology-based standards specified in 40 CFR 409 (a) and (b) are interpreted to require BOD_5 and TSS mass-loading effluent limitations for Discharge Point 002 (discharging process wastewater only). In addition, Basin Plan provides technology-based effluent limits for all wastewater treatment plants, including pH, oil and grease, settleable matter, total chlorine residual, and total coliform bacteria.

Table F-15. Summary of Technology-Based Limitations (002)

Constituent	Units	Effluent Limitations			
		Maximum Daily	Monthly Average	Instantaneous Minimum	Instantaneous Maximum
BOD_5[1]	lbs/day	2,000	730	---	---
TSS	lbs/day	2,600	730	---	---
pH	s.u.	---	---	6.0	9.0
Oil and Grease	mg/L	20	10	---	---
Total Chlorine Residual	mg/L	---	---	---	0.0
Settleable Matter					
Before April 18, 2010	mL/L/hr	2.0	1.0	---	---
After April 18, 2010	mL/L/hr	0.2	0.1	---	---

i) **BOD_5 and TSS mass loading effluent limits.** For this permit reissuance, Regional Board staff applied a new approach, which is based on 40 CFR 125.3(c)(2) and (3) and relies on Best Professional Judgment. The BOD_5 and TSS effluent limitations are the sum of those for the process wastewater and those for the municipal wastewater. The technology-based standards specified in 40 CFR 409(a) and (b) are interpreted for process wastewater as shown in Table F-13 above; the limits are calculated based on an average melt rate of raw cane sugar of 3,300 tons per day. The BOD_5 and TSS daily maximum limits for secondary treatment of sewage wastewater are from 40 CFR 133.102. The use of BOD_5 and TSS daily maximum effluent limits of 60 mg/L in mass loading limit calculation is retained from previous permit. Municipal wastewater maximum daily flow rate of 1.67 MGD and maximum monthly average flow rate of 0.54 MGD from CSD, observed during 2002 to 2005, were used in calculating loadings from CSD.

BOD_5 maximum daily limit (lbs/day) = 0.34 lbs/ton * 3,300 tons/day + 1.67 MGD*60 mg/L*8.34 =1,958 (lbs/day)

BOD_5 monthly average limit (lbs/day) = 0.18 lbs/ton * 3,300 tons/day + 0.54 MGD*30 mg/L*8.34 = 729 (lbs/day)

TSS maximum daily limit (lbs/day) = 0.54 lbs/ton * 3,300 tons/day + 1.67 MGD*60 mg/L*8.34 = 2,618 (lbs/day)

TSS monthly average limit (lbs/day) = 0.18 lbs/ton * 3,300 tons/day + 0.54 MGD*30 mg/L*8.34 = 729 (lbs/day)

where: Conversion factor (8.34) in [(L•lb)/(gallon•kg)] = 3.7854 L/gallon x 2.2 lbs/kg

The final mass loading limits were rounded to two significant figures, as shown in Table F-15.

Regional Water Board staff evaluated the Discharger's performance data and found that the Discharger would have had no problem complying with the proposed new technology-based limits from 2001 through 2005. Board staff concluded that immediate compliance with these limits is feasible. It is also concluded that the proposed limits represent Best Practicable Control Technology (BPT) and Best Conventional Pollutant Control Technology (BCT). In setting these limits, the factors specified in 40 CFR 125.3(d), as shown in the table below were considered.

Table F-16. Factors Considered Pursuant to 40 CFR 125.3(d)

Factors	Considerations
Cost relative to benefits	The cost of imposing these limits is reasonable given that the Discharger can comply without modifying its existing process.
Comparison of cost and pollutant reductions from publicly owned treatment works to cost and pollutant reductions from sugar refineries	The facility provides secondary treatment of CSD wastewater; therefore, the cost of continuing its operations is comparable to the costs for comparable publicly owned treatment works.
Age of equipment and facilities	The limits can be met with existing equipment and facilities, which must be also maintained to comply with secondary treatment standards for municipal wastewater.
Process employed	The limits can be met with the existing process.
Engineering aspects of various controls	The existing controls are practicable and capable of meeting the limits.
Process changes	No process changes are necessary to meet the limits.
Non-water quality environmental impacts	Because no process changes are necessary, no non-water quality impacts are foreseeable.

ii) **pH.** The effluent limitation for pH (6.0 – 9.0) for Outfalls 001 and 002 are retained from the previous permit and reflect requirements established by Table 4-2 of the Basin Plan for deep water discharges of conventional pollutants.

Pursuant to 40 CFR 401.17, "pH Effluent Limitations Under Continuous Monitoring," if the Discharger opts to use continuous pH monitoring, the Discharger will be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

iii) **Oil and grease.** This Order includes oil and grease technology-based effluent limitations . Technology-based effluent limitations are put in place to ensure that full secondary treatment is achieved by the wastewater treatment facility, as required under 40 CFR §133.102. Basin Plan Table 4-2 contains effluent limits for oil and grease of 20 mg/L as a daily maximum, and 10 mg/L as a monthly average for all treatment facilities. Therefore, these limits apply to JTP. The previous permit does not include an oil and grease effluent limit.

iv) **Chlorine Residual.** The instantaneous maximum limitation for chlorine of 0.0 mg/L for Outfall 002 is being retained by this Order and is based on the Basin Plan (Chapter 4, Table 4-2).

v) **Settleable Matter.** The interim and final effluent limitations for settleable matter are retained from the previous permit. The interim limits are established using BPJ. The CSD is required to continue its settleable matter special study to address the high settleable matter from excessive I/I. Final limitations for settleable matter, which become effective on April 18, 2010, reflect a level of effluent quality attainable by properly maintained and operated clarifiers.

vi) **Total Coliform Bacteria.** The purpose of these effluent limitations is to ensure adequate disinfection of the discharges in order to protect beneficial uses of the receiving waters. These effluent limits are retained from the previous permit, which are based on Basin Plan Table 4-2, total coliform limits for deepwater dischargers.

C. Water Quality-Based Effluent Limitations (WQBELs)

WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law. The scientific procedures for calculating individual WQBELs are based on the CTR-SIP, which was approved by USEPA prior to May 1, 2001, or Basin Plan provisions approved by USEPA on May 29, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 CFR 131.21 (c) (1). Other water quality objectives and beneficial uses implemented by this Order (specifically arsenic, copper, lead, mercury, nickel, and zinc) were approved by USEPA

on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21 (c) (2). Collectively, this Order's restrictions on individual pollutants are no more stringent than the applicable water quality standards for purposes of the Clean Water Act.

1. Scope and Authority

a. As specified in 40 CFR 122.44 (d) (1) (i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." The process for determining "Reasonable Potential" and calculating WQBELs, when necessary, is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, the CTR, and NTR.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs).

(1) NPDES Regulations. NPDES regulations at 40 CFR Part 122.45 (d) state:

"For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

(2) SIP. The SIP (page 8, Section 1.4) requires WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs).

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Applicable Beneficial Uses.** Beneficial uses applicable to Carquinez Strait are from the Basin Plan and are as follows:

Table F-17. Basin Plan Beneficial Uses of Carquinez Strait

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Carquinez Strait	• Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Preservation of Rare and Endangered Species (RARE) • Water Contact Recreation (REC-1) • Noncontact Water Recreation (REC-2) • Fish Spawning (SPWN) • Wildlife Habitat (WILD) • Navigation (NAV).

b. The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan, the CTR, and the NTR.

(1) **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c., below). The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

(2) **CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

(3) **NTR.** The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this Discharger.

c. Technical Support Document for Water Quality-Based Toxics Controls.

Where numeric objectives have not been established or updated in the Basin Plan, NPDES regulations at 40 CFR Part 122.44 (d) require that WQBELs be established based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses.

To determine the need for and establish WQBELs, when necessary, the Regional Water Board staff has followed the requirements of applicable NPDES regulations, including 40 CFR Parts 122 and 131, as well as guidance and requirements established by the Basin Plan; USEPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and the State Water Resources Control Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the SIP, 2005).

d. Basin Plan and CTR Receiving Water Salinity Policy. The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water shall be considered in determining the applicable WQOs/WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced fresh waters that support estuarine beneficial uses, the criteria shall be the lower of the salt- or freshwater criteria (the freshwater criteria for some metals are calculated based on ambient hardness) for each substance.

Salinity. The receiving water for discharges from the C&H Sugar Company is Carquinez Strait within northern San Francisco Bay - a tidally influenced waterbody with fresh water inflows. Regional Water Board staff evaluated salinity data for the period of March 1993 through August 2001 for the two nearest receiving water stations within the San Francisco Estuary Institutes's Regional Monitoring Program (RMP) – BD40 (Davis Point) and BD50 (Napa River). During this time period, salinity was greater than ten ppt in 30 of 57 samples; therefore, the receiving water is viewed as an estuarine environment for purposes of determining the need for and establishing water quality based effluent limitations. In these circumstances, the more stringent of the marine and fresh water WQOs/WQC from the Basin Plan, the CTR, and the NTR are applicable to discharges from the C&H Sugar Company facility.

e. Receiving Water Hardness.

Some fresh water WQOs/WQC for metals are hardness dependent; i.e., as hardness increases in the receiving water, the toxicity of certain metals decreases. To determine applicable water quality criteria for hardness dependent metals for purposes off this reasonable potential analysis, Regional Water Board staff used a hardness value of 48 mg/L $CaCO_3$, which is the

minimum hardness value observed in 26 samples collected at the Davis Point and the Napa River RMP monitoring stations between March 1993 and August 2001. When there are sufficient receiving water data for hardness, Regional Water Board staff typically perform a statistical analysis to determine an adjusted geometric mean – the value greater than 30 percent of the data points. When there is insufficient data to perform a statistical analysis, as in these circumstances, Regional Water Board staff use the minimum observed hardness in the receiving water. The Discharger has the option to sample for receiving hardness at the vicinity of the intake structure during the next 5-year permit term. The Regional Water Board may consider a new hardness value based on any new data for water quality objective/criteria calculation for the next permit reissuance.

3. Determining the Need for WQBELs

Assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required.

a. Reasonable Potential Analysis Methodology.

The RPA identifies the observed MEC in the effluent for each pollutant, based on effluent concentration data. There are three triggers in determining Reasonable Potential according to Section 1.3 of the SIP.

- The first trigger is activated if the MEC is greater than or equal to the lowest applicable WQO (MEC≥ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

- The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B>WQO) and the pollutant was detected in any of the effluent samples.

- The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

b. Effluent data.

The Regional Water Board's August 6, 2001 letter titled Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy (hereinafter referred to as the August 6, 2001 Letter) to all permittees, formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed this effluent data and the nature of upper San Francisco Bay to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data from January

2002 through December 2005 for metals, inorganic priority pollutants, and organic priority pollutants.

c. Ambient Background Data.

(1) Ambient background values are used in the reasonable potential analysis (RPA) and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations.

(2) The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data from the RMP, for the period March 1993 – August 2003, were used as background data in performing the RPA for this Discharger. Not all the constituents listed in the CTR were analyzed by the RMP during this time.

(3) These data gaps are addressed by the August 6, 2001 Letter. This letter formally requires the Dischargers (pursuant to Section 13267 of the California Water Code) to conduct ambient background monitoring and effluent monitoring for those constituents not currently sampled by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003 and June 15, 2004 , a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the San Francisco Bay Ambient Water Monitoring Interim Report, and Final CTR Sampling Update. These studies include monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP.

The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA Ambient Water Monitoring: Final CTR Sampling Update Report for the Yerba Buena Island RMP station. The Dischargers may utilize the receiving water study provided by BACWA to fulfill all requirements of the August 6, 2001 letter for receiving water monitoring in this Order.

d. RPA Determination.

Using the method prescribed in Section 1.3 of the SIP, Regional Water Board staff compared the effluent data and ambient background data with numeric and narrative WQOs in the Basin Plan and numeric WQC from USEPA, the NTR, and the CTR. The Basin Plan objectives and CTR criteria are shown in **Attachment F-2** of this Fact Sheet. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used, and Reasonable Potential conclusions from the RPAs for Discharge Points 001 and 002 are listed in the following tables for all constituents analyzed. Some of the constituents in the CTR were not determined because of the lack of an objective/criteria or effluent data. Based on the RPA methodology in the SIP, some constituents did not demonstrate Reasonable Potential. The RPA results are shown below and **Attachment F-2** of this Fact Sheet. The pollutants that exhibit Reasonable Potential in discharges from Discharge Point 001 are arsenic, copper, lead, mercury, nickel, selenium, zinc, cyanide, dioxin-TEQ, and bis (2-ethylhexyl) phthalate, and in discharges at Discharge Point 002, are copper, lead, mercury, cyanide, dioxin-TEQ, and bis(2-ethylhexyl)phthalate.

Table F-18. RPA Summary (001)

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
1	Antimony	4300	**0.6**	**1.8**	No
2	Arsenic	36	**45**	**2.46**	**Yes**
3	Beryllium	No Criteria	0.06	**0.215**	Undetermined
4	Cadmium	0.64	**0.6**	**0.1268**	No
5a	Chromium (III or Total)	110	**40**	Not Available	No
5b	Chromium (VI)	11.0	0.9	**4.4**	No
6	Copper	7.2	**20**	**2.55**	**Yes**
7	Lead	1.3	**2.6**	**0.804**	**Yes**
8	Mercury	0.025	**0.082**	**0.0086**	**Yes**
9	Nickel	30	**160**	**3.73**	**Yes**
10	Selenium	5.0	**26**	**0.39**	**Yes**
11	Silver	1.2	**0.03**	**0.052**	No
12	Thallium	6.3	**0.18**	**0.21**	No
13	Zinc	64	**220**	**5.1**	**Yes**
14	Cyanide	1.0	**4**	**0.4**	**Yes**
16	2,3,7,8-TCDD	1.4E-08	6.37E-07	Not Available	No
16-TEQ	Dioxin-TEQ	1.4E-08	**5.617E-08**	**7.1E-08**	**Yes**
17	Acrolein	780	0.56	0.5	No
18	Acrylonitrile	0.66	0.33	**0.03**	No
19	Benzene	71	**1.6**	0.05	No
20	Bromoform	360	0.07	0.5	No
21	Carbon Tetrachloride	4.4	0.06	**0.06**	No
22	Chlorobenzene	21000	0.06	0.5	No
23	Chlorodibromomethane	34	**1.9**	0.05	No
24	Chloroethane	No Criteria	0.07	0.5	Undetermined
25	2-Chloroethylvinyl Ether	No Criteria	0.1	0.5	Undetermined
26	Chloroform	No Criteria	**61**	0.5	Undetermined
27	Dichlorobromomethane	46	**17**	0.05	No

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
28	1,1-Dichloroethane	No Criteria	0.05	0.05	Undetermined
29	1,2-Dichloroethane	99	0.06	**0.04**	No
30	1,1-Dichloroethylene	3.2	0.06	0.5	No
31	1,2-Dichloropropane	39	0.05	0.05	No
32	1,3-Dichloropropylene	1700	0.06	Not Available	No
33	Ethylbenzene	29000	0.06	0.5	No
34	Methyl Bromide	4000	0.05	0.5	No
35	Methyl Chloride	No Criteria	0.04	0.5	Undetermined
36	Methylene Chloride	1600	0.07	**0.5**	No
37	1,1,2,2-Tetrachloroethane	11	0.06	0.05	No
38	Tetrachloroethylene	8.85	0.06	0.05	No
39	Toluene	200000	**0.45**	0.3	No
40	1,2-Trans-Dichloroethylene	140000	0.05	0.5	No
41	1,1,1-Trichloroethane	No Criteria	0.06	0.5	Undetermined
42	1,1,2-Trichloroethane	42	0.07	0.05	No
43	Trichloroethylene	81	0.06	0.5	No
44	Vinyl Chloride	525	0.05	0.5	No
45	2-Chlorophenol	400	0.4	1.2	No
46	2,4-Dichlorophenol	790	0.3	1.3	No
47	2,4-Dimethylphenol	2300	0.3	1.3	No
48	2-Methyl-4,6-Dinitrophenol	765	0.4	1.2	No
49	2,4-Dinitrophenol	14000	0.3	0.7	No
50	2-Nitrophenol	No Criteria	0.3	1.3	Undetermined
51	4-Nitrophenol	No Criteria	0.2	1.6	Undetermined
52	3-Methyl-4-Chlorophenol	No Criteria	0.3	1.1	Undetermined
53	Pentachlorophenol	7.9	0.4	1	No
54	Phenol	4600000	0.2	1.3	No
55	2,4,6-Trichlorophenol	6.5	0.2	1.3	No
56	Acenaphthene	2700	0.031	**0.0015**	No
57	Acenaphthylene	No Criteria	0.02	**0.00053**	Undetermined
58	Anthracene	110000	0.031	**0.0005**	No
59	Benzidine	0.00054	0.3	0.0015	No
60	Benzo(a)Anthracene	0.049	0.02	**0.0053**	No
61	Benzo(a)Pyrene	0.049	0.02	**0.00029**	No
62	Benzo(b)Fluoranthene	0.049	0.031	**0.0046**	No
63	Benzo(ghi)Perylene	No Criteria	0.031	**0.0027**	Undetermined
64	Benzo(k)Fluoranthene	0.049	0.041	**0.0015**	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	0.3	0.3	Undetermined
66	Bis(2-Chloroethyl)Ether	1.4	0.3	0.3	No
67	Bis(2-Chloroisopropyl)Ether	170000	0.6	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	**21**	0.5	**Yes**
69	4-Bromophenyl Phenyl Ether	No Criteria	0.4	0.23	Undetermined
70	Butylbenzyl Phthalate	5200	0.4	0.52	No
71	2-Chloronaphthalene	4300	0.3	0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	0.4	0.3	Undetermined
73	Chrysene	0.049	0.041	**0.0024**	No
74	Dibenzo(a,h)Anthracene	0.049	0.031	**0.00064**	No
75	1,2 Dichlorobenzene	17000	0.12	0.8	No
76	1,3 Dichlorobenzene	2600	0.16	0.8	No
77	1,4 Dichlorobenzene	2600	0.12	0.8	No

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
78	3,3-Dichlorobenzidine	0.077	0.3	0.001	No
79	Diethyl Phthalate	120000	0.4	0.24	No
80	Dimethyl Phthalate	2900000	0.4	0.24	No
81	Di-n-Butyl Phthalate	12000	0.4	0.5	No
82	2,4-Dinitrotoluene	9.1	0.3	0.27	No
83	2,6-Dinitrotoluene	No Criteria	0.3	0.29	Undetermined
84	Di-n-Octyl Phthalate	No Criteria	0.4	0.38	Undetermined
85	1,2-Diphenylhydrazine	0.54	0.3	**0.0037**	No
86	Fluoranthene	370	0.03	**0.011**	No
87	Fluorene	14000	0.02	**0.00208**	No
88	Hexachlorobenzene	0.00077	0.4	**0.0000202**	No
89	Hexachlorobutadiene	50	0.2	0.3	No
90	Hexachlorocyclopentadiene	17000	0.1	0.31	No
91	Hexachloroethane	8.9	0.2	0.2	No
92	Indeno(1,2,3-cd) Pyrene	0.049	0.031	**0.004**	No
93	Isophorone	600	0.3	0.3	No
94	Naphthalene	No Criteria	0.02	**0.0023**	Undetermined
95	Nitrobenzene	1900	0.3	0.25	No
96	N-Nitrosodimethylamine	8.1	0.4	0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	0.3	0.001	No
98	N-Nitrosodiphenylamine	16	0.4	0.001	No
99	Phenanthrene	No Criteria	0.03	**0.0061**	Undetermined
100	Pyrene	11000	0.03	**0.0051**	No
101	1,2,4-Trichlorobenzene	No Criteria	0.3	0.3	Undetermined
102	Aldrin	0.00014	0.003	Not Available	No
103	alpha-BHC	0.013	0.002	**0.000496**	No
104	beta-BHC	0.046	0.001	**0.000413**	No
105	gamma-BHC	0.063	0.001	**0.0007034**	No
106	delta-BHC	No Criteria	0.001	**0.000042**	Undetermined
107	Chlordane	0.00059	0.005	**0.00018**	No
108	4,4'-DDT	0.00059	0.001	**0.000066**	No
109	4,4'-DDE	0.00059	0.001	**0.000693**	No
110	4,4'-DDD	0.00084	0.001	**0.000313**	No
111	Dieldrin	0.00014	0.002	**0.000264**	No
112	alpha-Endosulfan	0.0087	0.002	**0.000031**	No
113	beta-Endosulfan	0.0087	0.001	**0.000069**	No
114	Endosulfan Sulfate	240	0.001	**0.0000819**	No
115	Endrin	0.0023	0.002	**0.000036**	No
116	Endrin Aldehyde	0.81	0.002	Not Available	Undetermined
117	Heptachlor	0.00021	0.003	**0.000019**	No
118	Heptachlor Epoxide	0.00011	0.002	**0.00002458**	No
119-125	PCBs sum	0.00017	0.031	Not Available	No
126	Toxaphene	0.0002	0.15	Not Available	Undetermined
	Tributylin	0.01	0.00044	0.001	No
	Total PAHs	15.0	0.02	**0.26**	No

[1] Concentration in bold is the actual detected maximum concentration, otherwise the concentration shown is the maximum detection level.
[2] Maximum Background = Not Available, if there is not monitoring data for this constituent.
[3] RPA Results = Yes, if MEC > WQO/WQC,
= No, if MEC or all effluent concentration non-detect < WQO/WQC,
= Undetermined, if no objective promulgated, and
= Cannot be determined due to lack of data.

Table F-19. RPA Summary (002)

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL[1]	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
1	Antimony	4300	**0.7**	**1.8**	No
2	Arsenic	36	**1.7**	**2.46**	No
3	Beryllium	No Criteria	0.06	**0.215**	Undetermined
4	Cadmium	0.64	**0.2**	**0.1268**	No
5a	Chromium (III or Total)	113	**9.8**	Not Available	No
5b	Chromium (VI)	11.4	0.9	**4.4**	No
6	Copper	7.16	**13**	**2.55**	**Yes**
7	Lead	1.25	**2.8**	**0.804**	**Yes**
8	Mercury	0.025	**0.98**	**0.0086**	**Yes**
9	Nickel	30.4	**13**	**3.73**	No
10	Selenium	5.0	**2**	**0.39**	No
11	Silver	1.15	**0.2**	**0.052**	No
12	Thallium	6.3	**0.095**	**0.21**	No
13	Zinc	64.3	**30**	**5.1**	No
14	Cyanide	1.0	**19**	0.4	**Yes**
16	2,3,7,8-TCDD	1.4×10^{-8}	6.37×10^{-7}	Not Available	No
16-TEQ	Dioxin-TEQ	1.4×10^{-8}	**2.23×10^{-7}**	**7.1×10^{-8}**	**Yes**
17	Acrolein	780	1	0.5	No
18	Acrylonitrile	0.66	1	**0.03**	No
19	Benzene	71	0.27	0.05	No
20	Bromoform	360	**0.9**	0.5	No
21	Carbon Tetrachloride	4.4	0.42	**0.06**	No
22	Chlorobenzene	21000	0.19	0.5	No
23	Chlorodibromomethane	34	**16**	0.05	No
24	Chloroethane	No Criteria	0.34	0.5	Undetermined
25	2-Chloroethylvinyl Ether	No Criteria	0.31	0.5	Undetermined
26	Chloroform	No Criteria	**210**	0.5	Undetermined
27	Dichlorobromomethane	46	**28**	0.05	No
28	1,1-Dichloroethane	No Criteria	0.28	0.05	Undetermined
29	1,2-Dichloroethane	99	0.18	**0.04**	No
30	1,1-Dichloroethylene	3.2	0.37	0.5	No
31	1,2-Dichloropropane	39	0.2	0.05	No
32	1,3-Dichloropropylene	1700	0.2	Not Available	No
33	Ethylbenzene	29000	0.3	0.5	No
34	Methyl Bromide	4000	0.42	0.5	No
35	Methyl Chloride	No Criteria	**1.0**	0.5	Undetermined
36	Methylene Chloride	1600	0.38	**0.5**	No
37	1,1,2,2-Tetrachloroethane	11	0.3	0.05	No
38	Tetrachloroethylene	8.85	0.32	0.05	No
39	Toluene	200000	0.25	0.3	No
40	1,2-Trans-Dichloroethylene	140000	0.3	0.5	No
41	1,1,1-Trichloroethane	No Criteria	0.35	0.5	Undetermined
42	1,1,2-Trichloroethane	42	0.27	0.05	No
43	Trichloroethylene	81	0.29	0.5	No
44	Vinyl Chloride	525	0.34	0.5	No
45	2-Chlorophenol	400	0.4	1.2	No
46	2,4-Dichlorophenol	790	0.3	1.3	No
47	2,4-Dimethylphenol	2300	0.3	1.3	No

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL[1]	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
48	2-Methyl-4,6-Dinitrophenol	765	0.4	1.2	No
49	2,4-Dinitrophenol	14000	0.3	0.7	No
50	2-Nitrophenol	No Criteria	0.3	1.3	Undetermined
51	4-Nitrophenol	No Criteria	0.2	1.6	Undetermined
52	3-Methyl-4-Chlorophenol	No Criteria	0.3	1.1	Undetermined
53	Pentachlorophenol	7.9	0.4	1	No
54	Phenol	4600000	**6.0**	1.3	No
55	2,4,6-Trichlorophenol	6.5	0.2	1.3	No
56	Acenaphthene	2700	0.17	**0.0019**	No
57	Acenaphthylene	No Criteria	0.03	**0.00053**	Undetermined
58	Anthracene	110000	0.16	**0.0005**	No
59	Benzidine	0.00054	0.3	0.0015	No
60	Benzo(a)Anthracene	0.049	0.12	**0.0053**	No
61	Benzo(a)Pyrene	0.049	0.09	**0.00029**	No
62	Benzo(b)Fluoranthene	0.049	0.11	**0.0046**	No
63	Benzo(ghi)Perylene	No Criteria	0.06	**0.0027**	Undetermined
64	Benzo(k)Fluoranthene	0.049	0.16	**0.0015**	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	0.3	0.3	Undetermined
66	Bis(2-Chloroethyl)Ether	1.4	0.3	0.3	No
67	Bis(2-Chloroisopropyl)Ether	170000	0.6	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	**17**	0.5	Yes
69	4-Bromophenyl Phenyl Ether	No Criteria	0.4	0.23	Undetermined
70	Butylbenzyl Phthalate	5200	0.4	0.52	No
71	2-Chloronaphthalene	4300	0.3	0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	0.4	0.3	Undetermined
73	Chrysene	0.049	0.14	**0.0024**	No
74	Dibenzo(a,h)Anthracene	0.049	0.04	**0.00064**	No
75	1,2 Dichlorobenzene	17000	0.112	0.8	No
76	1,3 Dichlorobenzene	2600	0.16	0.8	No
77	1,4 Dichlorobenzene	2600	0.3	0.8	No
78	3,3-Dichlorobenzidine	0.077	0.3	0.001	No
79	Diethyl Phthalate	120000	0.4	0.24	No
80	Dimethyl Phthalate	2900000	0.4	0.24	No
81	Di-n-Butyl Phthalate	12000	0.4	0.5	No
82	2,4-Dinitrotoluene	9.1	0.3	0.27	No
83	2,6-Dinitrotoluene	No Criteria	0.3	0.29	Undetermined
84	Di-n-Octyl Phthalate	No Criteria	0.4	0.38	Undetermined
85	1,2-Diphenylhydrazine	0.54	0.3	**0.0037**	No
86	Fluoranthene	370	0.03	**0.011**	No
87	Fluorene	14000	0.02	**0.00208**	No
88	Hexachlorobenzene	0.00077	0.4	**0.0000202**	No
89	Hexachlorobutadiene	50	0.2	0.3	No
90	Hexachlorocyclopentadiene	17000	0.1	0.31	No
91	Hexachloroethane	8.9	0.2	0.2	No
92	Indeno(1,2,3-cd) Pyrene	0.049	0.04	**0.004**	No
93	Isophorone	600	0.3	0.3	No
94	Naphthalene	No Criteria	0.05	**0.0023**	Undetermined
95	Nitrobenzene	1900	0.3	0.25	No
96	N-Nitrosodimethylamine	8.1	0.4	0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	0.3	0.001	No

CTR #	Priority Pollutants (µg/L)	Governing WQO/WQC	MEC or Minimum DL[1]	Maximum Background or Minimum DL[1, 2]	RPA Results[3]
98	N-Nitrosodiphenylamine	16	0.4	0.001	No
99	Phenanthrene	No Criteria	0.03	**0.0061**	Undetermined
100	Pyrene	11000	0.03	**0.0051**	No
101	1,2,4-Trichlorobenzene	No Criteria	0.3	0.3	Undetermined
102	Aldrin	0.00014	0.003	Not Available	No
103	alpha-BHC	0.013	0.002	**0.000496**	No
104	beta-BHC	0.046	0.001	**0.000413**	No
105	gamma-BHC	0.063	0.001	**0.0007034**	No
106	delta-BHC	No Criteria	0.001	**0.000042**	Undetermined
107	Chlordane	0.00059	0.005	**0.00018**	No
108	4,4'-DDT	0.00059	0.001	**0.000066**	No
109	4,4'-DDE	0.00059	0.001	**0.000693**	No
110	4,4'-DDD	0.00084	0.001	**0.000313**	No
111	Dieldrin	0.00014	0.002	**0.000264**	No
112	alpha-Endosulfan	0.0087	0.002	**0.000031**	No
113	beta-Endosulfan	0.0087	0.001	**0.000069**	No
114	Endosulfan Sulfate	240	0.001	**0.0000819**	No
115	Endrin	0.0023	0.002	**0.000036**	No
116	Endrin Aldehyde	0.81	0.002	Not Available	No
117	Heptachlor	0.00021	0.003	**0.000019**	No
118	Heptachlor Epoxide	0.00011	0.002	**0.00002458**	No
119-125	PCBs sum	0.00017	0.03	Not Available	No
126	Toxaphene	0.0002	0.2	Not Available	No
	Tributylin	0.01	0.000465	0.001	No
	Total PAHs	15.0	0.02	**0.26**	No

[1] Concentration in bold is the actual detected maximum concentration, otherwise the concentration shown is the maximum detection level.
[2] Maximum Background = Not Available, if there is not monitoring data for this constituent.
[3] RPA Results = Yes, if MEC > WQO/WQC,
= No, if MEC or all effluent concentration non-detect < WQO/WQC,
= Undetermined, if no objective promulgated, and
= Cannot be determined due to lack of data.

e. **Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

f. **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

4. WQBEL Calculations.

a. Applicable WQC/WQOs for Pollutants with Reasonable Potential.

WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQOs or WQC used for each pollutant with Reasonable Potential and the basis for the WQOs/WQC is indicated in the following table.

Table F-20. Water Quality Criteria/Objectives for Toxics

Pollutant	Water Quality Criterion or Objective (µg/L)			Basis
	Aquatic Life Chronic	Aquatic Life Acute	Human Health	
Arsenic	36	69	---	Basin Plan (salt water aquatic life)
Copper	8.2	7.2	---	CTR (salt water aquatic life) converted to total with site-specific translators for the Bay) – for RPA purpose
Copper	20	17	---	CTR (salt water aquatic life) converted to total with site-specific translators and a WER for the Bay) – for WQBEL calculation
Copper	16	14	---	Proposed site-specific objectives and a WER for the Bay – for alternate WQBEL calculation
Lead	1.2	32	---	Basin Plan (fresh water aquatic life)
Mercury	0.025	2.1	0.051	Basin Plan (salt water aquatic life)
Nickel	30	130	4600	Basin Plan (salt water aquatic life)
Selenium	5.0	20	---	NTR criteria for the Bay
Zinc	64	64	---	Basin Plan (fresh water aquatic life)
Cyanide	1.0	1.0	220000	NTR criteria for the Bay
Cyanide	2.9	9.4	---	Proposed site-specific objectives for the Bay
Dioxin-TEQ	---	---	1.4×10^{-8}	Basin Plan narrative
Bis (2-ethylhexyl) phthalate	---	---	5.9	CTR Human Health

b. Dilution Credit

The SIP provides the basis for the dilution credit granted. The C&H Sugar Company Outfalls 001 and 002 are designed to achieve a minimum of 10:1 dilution. Review of RMP data (local and North Bay stations) reveals variability in the receiving water, and the hydrology of the receiving water is very complex. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data for effluent limit calculations. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis...." The Regional Water Board finds that a conservative 10:1 dilution credit for non-bioaccumulative priority pollutants and a zero dilution credit for bioaccumulative priority pollutants are necessary for protection of beneficial uses. The detailed basis for each are explained below.

(1) For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The Regional Water Board placed selenium, mercury, and polychlorinated biphenyls (PCBs) on the CWA Section 303(d) list. U.S. EPA added dioxin and furan compounds, chlordane, dieldrin, and 4,4'-DDT to the CWA Section 303(d) list. Dilution credit is not included for mercury. The following factors suggest that there is no more assimilative capacity in the Bay for these pollutants.

San Francisco Bay fish tissue data show that these pollutants exceed screening levels. The fish tissue data are contained in *Contaminant Concentrations in Fish from San Francisco Bay 1997* (May 1997). Denial of dilution credits for these pollutants is further justified by fish advisories for San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, *Contaminated Levels in Fish Tissue from San Francisco Bay*. The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the Bay in December 1994. This interim consumption advice was issued and is still in effect owing to health concerns based on exposure to sport fish from the Bay contaminated with mercury, dioxins, and pesticides (e.g., DDT).

For selenium, the denial of dilution credits is based on Bay waterfowl tissue data presented in the California Department of Fish and Game's Selenium Verification Study (1986-1990). These data show elevated levels of selenium in the livers of waterfowl that feed on bottom dwelling organisms such as clams. Additionally, in 1987 the Office of Environmental Health Hazard Assessment issued an advisory for the consumption of two species of diving ducks in the North Bay found to have high tissue levels of selenium. This advisory is still in effect.

(2) Furthermore, Section 2.1.1 of the SIP states that for bioaccumulative compounds on the 303(d) list, the Regional Water Board should consider whether mass-loading limits should be limited to current levels. The Regional Water Board finds that mass-loading limits are warranted for mercury for the receiving waters of this Discharger. This is to ensure that this Discharger does not contribute further to impairment of the narrative objective for bioaccumulation.

(3) For non-bioaccumulative constituents, a conservative allowance of 10:1 dilution for discharges to the Bay has been assigned for protection of beneficial uses. The basis for using 10:1 is that it was granted in the previous permit. This 10:1 is also based on the Basin Plan's prohibition number 1, which prohibits discharges with less than 10:1 dilution. Limiting the dilution

credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for derivation of the dilution credit.

i. A far-field background station is appropriate because the receiving water body (the Bay) is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

   The Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the RMP. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Regional Water Board staff believes that data from this station are representative of water that will mix with the discharge from 001 and 002. Although this station is located near the Golden Gate, it would represent the typical water flushing in and out of the Bay each tidal cycle. For most of the Bay, the waters represented by this station make up a large part of the receiving water the will mix with the discharge.

ii. Because of the complex hydrology of the San Pablo Bay, a mixing zone has not been established. There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used to predict dilution have not considered the three-dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water outflows. Salt water is heavier than fresh water, colder saltwater from the ocean flushes in twice a day generally under the warmer fresh river waters that flow out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to the bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a diffuser.

iii. The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, silver, nickel, and lead). Discharges to the bay are defined in the SIP as incompletely mixed discharges. Thus, dilution credit should be determined using site-specific information. The SIP 1.4.2.2 specifies that the Regional Water Board "significantly limit a mixing zone

and dilution credit as necessary... For example, in determining the extent of a mixing zone or dilution credit, the RWQCB shall consider the presence os pollutants in the discharge that are ...persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g. copper). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations.

c. Final Effluent Limitation Calculations.

The following tables summarize the WQBELs calculated for each toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP, as shown in **Attachment F-3** of this Fact Sheet.

Table F-21. Final WQBELs for Toxics (Discharge Point 001)

Pollutants	Units	AMEL	MDEL
Arsenic	µg/L	290	510
Copper	µg/L	96	150
Copper (alternate Limits)	µg/L	76	120
Lead	µg/L	3.7	8.3
Mercury	µg/L	0.018	0.046
Nickel	µg/L	200	480
Selenium	µg/L	3.9	8.7
Zinc	µg/L	250	590
Cyanide	µg/L	3.2	6.4
Cyanide (alternate limits)	µg/L	21	42
Dioxin - TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}
Bis (2-ethylhexy) phthalate	µg/L	54	110

Table F-22. Final WQBELs for Toxics (Discharge Point 002)

Pollutants	Units	AMEL	MDEL
Copper	µg/L	88	150
Copper (alternate Limits)	µg/L	70	120
Lead	µg/L	3.6	9.7
Mercury	µg/L	0.012	0.038
Cyanide	µg/L	2.9	6.4
Cyanide (alternate limits)	µg/L	20	44
Dioxin – TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}
Bis (2-ethylhexy) phthalate	µg/L	54	110

d. Development of Effluent Limitations for Specific Pollutants – Outfalls 001 and 002

(1) **Arsenic.**

i. **Arsenic WQOs.** The most stringent water quality objectives/criteria for arsenic, applicable to discharges from the C&H Sugar Company facility, are 36 and 69 µg/L – chronic and acute, respectively, from the Basin Plan and CTR for the protection of saltwater aquatic life.

ii. **RPA Results.** From January 2002 – July 2004, the maximum observed effluent concentration (MEC) of arsenic was 45 µg/L at Discharge Point 001. Because the MEC at Discharge Point 001 exceeds the most stringent applicable objective/criterion of 36 µg/L, there is reasonable potential for discharges from Discharge Point 001 to cause or contribute to exceedances of applicable WQOs/WQC (trigger 1), and this Order establishes effluent limitations for arsenic for that outfall.

iii. **Arsenic WQBELs.** The arsenic WQBELs calculated according to SIP procedures are 510 µg/L as the maximum daily effluent limit (MDEL) and 290 µg/L as the average monthly effluent limit (AMEL) for Discharge Point 001. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through July 2004, the Discharger's effluent concentrations were in the range of 6 µg/L to 45 µg/L (32 samples). A statistical analysis shows that the Discharger can comply with these final effluent limitations.

v. **Antibacksliding.** The previous permit did not include effluent limitations for arsenic; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(2) **Copper.**

i. **Copper WQC.** The marine chronic and acute criteria for dissolved copper adopted in the CTR and Basin Plan are defined as 3.1 and 4.8 µg/L multiplied by a water effects ratio or WER (40 CFR 131.38 (b) and (c)(4)(i) and (iii)). The default value for the WER is 1.0 unless a WER has been developed as set forth in USEPA's WER guidance (Interim Guidance on Determination and Use of Water Effect Ratios, USEPA Office of Water, EPA-823-B-94-001, February 1994). WERs have been developed for San Francisco Bay in accordance with this USEPA guidance as documented in *North of Dumbarton Bridge Copper and Nickel Site-Specific Objective (SSO) Derivation (Clean Estuary Partnership December 2004.* The most recent document is *Copper Site-Specific Objectives in San Francisco Bay, Proposed Basin Plan Amendment and Draft Staff Report, dated March 2,*

2007). Based on the data in these reports, a WER of 2.4 is appropriate for this discharge. In addition, Regional Water Board developed copper site-specific translators along with the study using RMP data for San Pablo Bay. The translators are 0.38 and 0.67 for converting chronic and acute dissolved WQC into total WQC, respectively. The resulting adjusted WQC for this discharge are 20 µg/L for chronic protection and 17 µg/L for acute protection, and are used in WQBELs calculation. However, when determining reasonable potential, a WER value of 1.0 is still used, the resulting WQC as 8.2 µg/L for chronic protection and 7.2 µg/L for acute protection are used in RPA.

ii. **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of copper were 20 and 13 µg/L at Discharge Points 001 and 002, respectively. Because the MECs at Discharge Points 001 and 002 both exceed the most stringent applicable criterion of 7.2 µg/L, there is reasonable potential for discharges from both outfalls to cause or contribute to exceedances of applicable WQC (trigger 1); and this Order, therefore, establishes effluent limitations for copper for Discharge Points 001 and 002.

iii. **Copper WQBELs.** The copper WQBELs calculated according to SIP procedures are: for Discharge Point 001 – 150 µg/L as the maximum daily effluent limit (MDEL) and 96 µg/L as the average monthly effluent limit (AMEL); for Discharge Point 002 – 150 µg/L as MDEL and 88 µg/L as AMEL. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through December 2005, the Discharger's effluent concentrations were in the range of 6 µg/L to 20 µg/L for 001 (32 samples), and 2.3 µg/L to 13 µg/L for 002 (50 samples). A statistical analysis shows that the Discharger can comply with these final effluent limitations.

v. **Copper SSO and Alternate WQBELs**. During the permit term, the Regional Water Board may amend the copper WQBELs based on the SSO being developed for the San Francisco Bay as depicted in the documents cited in subsection a. above. The site specific objectives proposed are 6.0 µg/L as a four-day average and 9.4 µg/L as a one-hour average, expressed as dissolved metal. Using the site-specific translators, 0.38 and 0.67 for converting chronic and acute dissolved WQC into total WQC, respectively, the resulting WQOs are 16 µg/L for chronic protection and 14 µg/L for acute protection. Based on the Discharger's current copper data (coefficient of variation of 0.32 and 0.40 for Discharges 001 and 002, respectively), the alternate WQBELs for copper will be 120 µg/L as an MDEL and 76 µg/L as an AMEL for Discharge 001; and 120 µg/L as an MDEL and 70 µg/L as an AMEL for Discharge 002. These alternative limits will become effective only if the

site-specific objective adopted contains the same assumptions in the report cited in subsection a. above.

vi. **Antibacksliding.** The previous permit included an interim effluent limit of 37 µg/L as a daily maximum for Discharge 002. Antibacksliding does not apply to interim limits and since there were no final WQBELs in the previous permit to which to compare the new final WQBELs, there is no backsliding. There was no effluent limit in the previous permit for Discharge 001; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(3) **Lead.**

i. **Lead WQOs/WQC.** The most stringent applicable water quality objectives/criteria for lead, applicable to discharges from the C&H Sugar Company facility, are 1.3 and 32 µg/L – chronic and acute, respectively, from the Basin Plan and the CTR for the protection of fresh water aquatic life. As fresh water aquatic life objectives/criteria from the Basin Plan and the CTR are hardness dependent (i.e., toxicity of lead in fresh water increases with decreasing hardness), these specific objectives/criteria are based on a receiving water hardness of 48 mg/L $CaCO_3$, which is the lowest hardness concentration observed at the RMP Davis Point and Napa River Monitoring Stations. The Regional Water Board typically uses hardness data from the closest RMP monitoring station and/or site-specific data, if it is available. When sufficient data exist to do statistical analyses, Regional Water Board staff use a background receiving water hardness figure that is an adjusted geometric mean - the value that is greater than 30 percent of the data points. When hardness data are limited, as in these circumstances, Regional Water Board staff use the minimum hardness value to determine fresh water objectives/criteria for lead.

ii. **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of lead were 2.6 and 2.8 µg/L at Discharge Points 001 and 002, respectively. Because the MECs at both outfalls exceed the most stringent applicable objective/criterion of 1.3 µg/L, there is reasonable potential for discharges from Discharge Points 001 and 002 to cause or contribute to exceedances of applicable WQOs/WQC (trigger 1), and this Order establishes effluent limitations for lead for Discharge Points 001 and 002.

iii. **Lead WQBELs.** The lead WQBELs calculated according to SIP procedures are: for Discharge Point 001 – 8.3 µg/L as the maximum daily effluent limit (MDEL) and 3.7 µg/L as the average monthly effluent limit (AMEL); for Discharge Point 002 – 9.7 µg/L as MDEL and 3.6 µg/L as AMEL. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through December 2005, the Discharger's effluent concentrations were in the range of <0.02 µg/L to 2.6 µg/L for Discharge 001 (32 samples), and 0.13 µg/L to 2.8 µg/L (50 samples) for Discharge 002. A statistical analysis shows that the Discharger can comply with these final effluent limitations.

v. **Antibacksliding.** The previous permit included a final MDEL of 50.3 µg/L for Discharge 002. The new limits are more stringent than this previous permit limit. Therefore, antibacksliding requirements are satisfied. There was no effluent limit in the previous permit for Discharge 001; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(4) **Mercury.**

i. **Mercury WQOs/WQC.** Both the Basin Plan and the CTR include objectives and criteria that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of saltwater aquatic life of 0.025 µg/L as a 4-day average and 2.1 µg/L as a 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.

ii. **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of mercury were 0.082 and 0.98 µg/L at Discharge Points 001 and 002, respectively. Because the MECs at both outfalls exceed the most stringent applicable objective of 0.025 µg/L, there is reasonable potential for discharges from Discharge Points 001 and 002 to cause or contribute to exceedances of applicable WQOs (trigger 1), and this Order establishes effluent limitations for mercury for both outfalls.

iii. **Mercury WQBELs.** The mercury WQBELs calculated according to SIP procedures are: for Discharge Point 001 – 0.046 µg/L as the maximum daily effluent limit (MDEL) and 0.018 µg/L as the average monthly effluent limit (AMEL); for Discharge Point 002 – 0.038 µg/L as MDEL and 0.012 µg/L as AMEL. Although discharges from Discharge Points 001 and 002 are viewed as deep water discharges pursuant to the Basin Plan, these final effluent limitations are not based on a minimum initial dilution of 10 to 1, as typically provided to deep water discharges. Mercury is a bioaccumulative pollutant, and therefore credit for dilution cannot be justified in developing effluent limitations.

iv. **Plant Performance and Attainability.** During the period January 2002 through December 2005, the Discharger's effluent concentrations were in the range of 0.0031 µg/L to 0.082 µg/L for Discharge 001 (32 samples), and 0.0009 µg/L to 0.98 µg/L (50 samples) for Discharge 002. Both the MECs exceed the AMELs, respectively. As detailed in a section below, it

is infeasible for the Discharger to comply with the final WQBELs; therefore, interim effluent limitations are established.

v. **Mercury Control Strategy.** The Regional Water Board is developing a TMDL to control mercury levels in San Francisco Bay. The Regional Water Board, together with other stakeholders, will cooperatively develop source control strategies as part of the TMDL development. Municipal discharge point sources do not represent a significant mercury loading to San Francisco Bay. Therefore, the currently preferred strategy is to apply interim mass loading limits to point source discharges while focusing mass reduction efforts on other more significant and controllable sources. While the TMDL is being developed, the Discharger will cooperate in maintaining ambient receiving water conditions by complying with performance-based mercury mass emission limits. Therefore, this Order includes interim mass loading effluent limitations for mercury, as described in the fact sheet below. The Discharger is required to implement source control measures and cooperatively participate in special studies as described below.

vi. **Mercury TMDL.** The current 303(d) list includes the San Francisco Bay as impaired by mercury due to high mercury concentrations in the tissues of fish from the Bay. Methylmercury, a highly toxic for of mercury, is a persistent bioaccumulative pollutant. There is no evidence to show that mercury discharged by the Discharger is taken out of the hydrologic system by processes such as evaporation before reaching San Francisco Bay. The Regional Water Board intends to establish a TMDL that will lead toward overall reduction of mercury mass loadings into San Francisco Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. While the TMDL is being developed, the Discharger will comply with performance-based mercury concentration and mass-based limitations to cooperate with maintaining current ambient receiving water conditions.

vii. **Antibacksliding.** The previous permit did not specify final WQBELs for mercury and only contained interim effluent limitations for Discharge 002, which were 1 µg/L as a daily maximum, and 0.21 µg/L as a monthly average limit. Antibacksliding does not apply to interim limits and since there were no final WQBELs in the previous permit to which to compare the new WQBELs, there is no backsliding. Nevertheless, the new limits for Discharge 002 are more stringent than the previous interim limits, which is consistent with antibacksliding requirements.

(5) **Nickel.**

i. **Nickel WQOs/WQC.** The most stringent applicable WQOs/WQC for nickel, applicable to discharges from the C&H Sugar Company facility, are 30 and 130 µg/L - chronic and acute, respectively, from the Basin Plan and the CTR for the protection of saltwater aquatic life. Because the

Basin Plan and CTR express the saltwater aquatic life objectives/criteria for nickel as dissolved metal, these specific objectives/criteria (30 and 130 µg/L), which are expressed as total recoverable metal, were derived using site specific translators of 0.27 (chronic) and 0.57 (acute), as recommended by the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005).

ii. **RPA Results.** From January 2002 – December 2005, maximum observed effluent concentrations (MECs) of nickel were 160 and 13 µg/L at Discharge Points 001 and 002, respectively. Because the MEC at Discharge Point 001 exceeds the most stringent applicable WQO of 30 µg/L, there is reasonable potential for discharges from Discharge Point 001 to cause or contribute to exceedances of applicable WQOs/WQC (trigger 1), and this Order, therefore, establishes effluent limitations for nickel for Discharge Point 001.

iii. **Nickel WQBELs.** The nickel WQBELs calculated according to SIP procedures are 480 µg/L as the maximum daily effluent limit (MDEL) and 200 µg/L as the average monthly effluent limit (AMEL) for Discharge Point 001. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through July 2004, the Discharger's effluent concentrations were in the range of 10 µg/L to 160 µg/L for Discharge 001 (32 samples). A statistical analysis shows that the Discharger can comply with these final effluent limitations.

v. **Antibacksliding.** Although the previous permit included an interim daily maximum effluent limitation for nickel at Discharge Point 002 of 53 µg/L, there is no WQBEL for Discharge Point 002 because there is no reasonable potential from this discharge. Therefore, antibacksliding requirements are satisfied. There was no effluent limit in the previous permit for Discharge 001; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(6) **Selenium.**

i. **Selenium WQC.** The most stringent applicable water quality criteria for selenium, applicable to discharges from the C&H Sugar Company facility, are 5 and 20 µg/L, from the NTR for the protection of chronic and acute aquatic life in San Francisco Bay.

ii. **RPA Results.** From January 2002 – December 2005, maximum observed effluent concentrations (MECs) of selenium were 26 and 2.0 µg/L at Discharge Points 001 and 002, respectively. Because the MEC at Discharge Point 001 exceeds the most stringent applicable criterion of

5.0 µg/L, there is reasonable potential for discharges from Discharge Point 001 to cause or contribute to exceedances of applicable WQC (trigger 1), and this Order, therefore, establishes effluent limitations for selenium for Discharge Point 001.

iii. **Selenium WQBELs.** The selenium WQBELs calculated according to SIP procedures are 8.7 µg/L as the maximum daily effluent limit (MDEL) and 3.9 µg/L as the average monthly effluent limit (AMEL) for Discharge Point 001. Selenium is a bioaccumulative pollutant, and therefore credit for dilution cannot be justified in developing effluent limitations.

iv. **Plant Performance and Attainability.** During the period January 2002 through July 2005, the Discharger's effluent concentrations were in the range of <0.5 µg/L to 26 µg/L for Discharge 001 (32 samples). The Discharger's Infeasibility Analysis asserts the Discharger cannot immediately comply with these WQBELs for selenium. A statistical analysis was conducted on the Discharger's effluent data from January 2002 through December 2005. Based on the analysis, the Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with final selenium WQBELs.

v. **Antibacksliding.** The previous permit did not include an effluent limitation for selenium at either discharge; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(7) **Zinc.**

i. **Zinc WQOs/WQC.** The most stringent applicable WQOs/WQC for zinc applicable to discharges from the C&H Sugar Company facility is 64 µg/L, which is both a chronic and an acute objective/criterion from the Basin Plan and the CTR for the protection of fresh water aquatic life. This WQO/WQC is calculated based on a hardness value of 48 mg/L as $CaCO_3$, which is the lowest hardness concentration observed at the RMP Davis Point and Napa River Monitoring Stations.

ii. **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of zinc were 220 and 30 µg/L at Discharge Points 001 and 002, respectively. Because the MEC at Discharge Point 001 exceeds the most stringent applicable objective/criterion of 64 µg/L, there is reasonable potential for discharges from Discharge Point 001 to cause or contribute to exceedances of applicable WQOs/WQC (trigger 1), and this Order establishes effluent limitations for zinc for Discharge Point 001.

iii. **Zinc WQBELs.** The zinc WQBELs calculated according to SIP procedures are 590 µg/L as the maximum daily effluent limit (MDEL) and 250 µg/L as the average monthly effluent limit (AMEL) for Discharge Point

001. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through July 2004, the Discharger's effluent concentrations were in the range of 4 µg/L to 220 µg/L for Discharge 001 (32 samples). Due to lack of appropriate distribution fit to the effluent data, a statistical analysis cannot be performed, however, the MEC does not exceed the AMEL; therefore, it is expected that the Discharger can comply with these final effluent limitations.

v. **Antibacksliding.** The previous permit did not include an effluent limit for either discharge; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(8) **Cyanide.**

i. **Cyanide WQC.** The most stringent applicable water quality criterion for cyanide applicable to discharges from the C&H Sugar Company facility is 1.0 µg/L, which is both a chronic and an acute criterion from the NTR for the protection of aquatic life in San Francisco Bay.

ii. **Cyanide RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of cyanide were 4.0 and 19 µg/L at Discharge Points 001 and 002, respectively. Because the MECs at both outfalls exceed the most stringent applicable criterion of 1.0 µg/L, there is reasonable potential for discharges from Discharge Points 001 and 002 to cause or contribute to exceedances of applicable WQC (trigger 1), and this Order establishes effluent limitations for cyanide for Discharge Points 001 and 002.

iii. **Cyanide WQBELs.** The cyanide WQBELs calculated according to SIP procedures are: for Discharge Point 001 – 6.4 µg/L as the maximum daily effluent limit (MDEL) and 3.2 µg/L as the average monthly effluent limit (AMEL); for Discharge Point 002 – 6.4 µg/L as MDEL and 2.9 µg/L as AMEL. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through December 2005, the Discharger's effluent concentrations were in the range of <0.6 µg/L to 4 µg/L (32 samples) for Discharge 001, and <9 µg/L to 19 µg/L for Discharge 002 (30 samples). The Discharger's Infeasibility Analysis asserts the Discharger cannot immediately comply with these WQBELs for cyanide. A direct comparison between the MEC and the AMEL for Discharge 001 and a statistical analysis of the effluent data from 002 were conducted, and the Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with these final cyanide WQBELs.

v. **Alternate Effluent Limits for Cyanide.** The Regional Water Board adopted Resolution No. R2-2006-0086 in December 2006, to amend Basin Plan to adopt site-specific objectives for cyanide for San Francisco Bay. In this resolution, the cyanide site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on the Discharger's current cyanide data (coefficient of variation of 0.60 for Discharge Point 001 and 0.71 for Discharge Point 002), final water quality based effluent limits for cyanide for 001 will be 42 µg/L as an MDEL and 21 µg/L as an AMEL; and for 002, 44 µg/L as MDEL and 20 µg/L as AMEL. These alternative limits will become effective after this Basin Plan amendment is approved by State Water Board, USEPA, and Office of Administrative Law.

vi. **Antibacksliding.** The previous permit did not include a cyanide effluent limit for either discharge; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(9) **Dioxin-TEQ.**

i. The Basin Plan contains a narrative WQO for bioaccumulative substances:

"Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

This narrative WQO applies to dioxin and furan compounds, based in part on the consensus of the scientific community that these compounds associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms.

ii. The CTR establishes a numeric human health WQC of 0.014 picogram per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have a reasonable potential with respect to narrative criteria. In USEPA's National Recommended WQOs, December 2002, USEPA published the 1998 World Health Organization Toxicity Equivalence Factor (TEF)[1] scheme. In addition, the CTR preamble states USEPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The

[1] The 1998 WHO scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs," for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

SIP applies to all toxic pollutants, including dioxins and furans. Staff used TEQs and the CTR criteria for 2,3,7,8-TCDD to translate the Basin Plan narrative WQOs for bioaccumulation to numeric WQOs for the other 16 congeners.

iii. USEPA's 303(d) listing determined that the narrative objective for bioaccumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue.

iv **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of dioxin-TEQ were 5.61×10^{-8} and 8.17×10^{-10} µg/L at Discharge Points 001 and 002, respectively. Because the MEC at Discharge 001 exceeds the numeric translation of the narrative objective (1.4×10^{-8} µg/L,) and the maximum ambient background concentration of 7.1×10^{-8} exceeds the most stringent applicable WQO, there is reasonable potential for discharges from Discharge Points 001 and 002 to cause or contribute to exceedances of applicable water quality criteria (trigger 1 and trigger 2, respectively), and this Order establishes effluent limitations for dioxin-TEQ for Discharge Points 001 and 002.

v. **Dioxin-TEQ Final Effluent Limits.** Final WQBELs for dioxin-TEQ, calculated according to methods presented in Section 1.4 of the SIP, are 2.8×10^{-8} and 1.4×10^{-8} µg/L as MDEL and AMEL, respectively, for both discharges. Dioxin-TEQ is a bioaccumulative pollutant, and therefore credit for dilution cannot be justified in developing effluent limitations for this pollutant. These final effluent limitations for dioxin-TEQ are not included in the Order, as the compliance schedule established for dioxin-TEQ exceeds the expected term of the Order. The Discharger shall comply with the final effluent limits starting June 1, 2017.

vi. **Plant Performance and Attainability.** During January 2002 through December 2005, the Discharger's effluent concentrations were in the range of 0 pg/L to 0.0561 pg/L (6 samples) for Discharge 001, and 0 pg/L to 0.000817 pg/L for Discharge 002 (5 samples). The Discharger's Infeasibility Analysis asserts the Discharger cannot immediately comply with these WQBELs for dioxin-TEQ. This Order includes a compliance schedule until May 31, 2017. Since there is insufficient data to either perform a meaningful statistical analysis or to calculate an interim effluent limit, this Order does not contain an interim effluent limitation for dioxins. Effluent limits may be imposed if more information is available or until a TMDL is developed for the Bay.

vii. **Antibacksliding.** The previous permit did not include a dioxins effluent limit for either discharge; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding requirements.

(10) **Bis (2-ethylhexyl) phthalate (BEHP).**

i. **BEHP WQC.** The most stringent applicable water quality criterion for bis (2-ethylhexyl) phthalate or BEHP, applicable to discharges from the C&H Sugar Company facility is 5.9 µg/L, which is a criterion from the CTR for the protection of human health when organisms only (not water) are consumed from the receiving water.

ii. **RPA Results.** From January 2002 through December 2005, maximum observed effluent concentrations (MECs) of BEHP were 21 and 17 µg/L at Discharge Points 001 and 002, respectively. Because the MECs at both outfalls exceed the most stringent applicable criterion of 5.9 µg/L, there is reasonable potential for discharges from Discharge Points 001 and 002 to cause or contribute to exceedances of applicable water quality criteria (trigger 1), and this Order establishes effluent limitations for BEHP for Discharge Points 001 and 002.

iii. **BEHP WQBELs.** The final WQBELs for BEHP calculated according to SIP procedures are 110 µg/L as the maximum daily effluent limit (MDEL) and 54 µg/L as the average monthly effluent limit (AMEL) for both discharge points. A dilution credit of 10:1 was incorporated into the calculation of WQBELs.

iv. **Plant Performance and Attainability.** During the period January 2002 through December 2005, the Discharger's BEHP effluent concentrations were in the range of <0.3 µg/L to 21 µg/L for Discharge 001 (8 samples), and <0.3 µg/L to 17 µg/L for Discharge 002 (6 samples). Since there is limited data to perform a meaningful statistical analysis to determine compliance attainability, a direct comparison between the MECs and AMELs was conducted. Since both MECs do not exceed the AMEL, it is expected that the Discharger can comply with these final effluent limitations.

v. **Antibacksliding/Antidegradation.** The previous permit did not include a BEHP effluent limit for either discharge; therefore, the new limits are more stringent than the previous ones, which is consistent with antibacksliding and antidegradation requirements.

D. Interim Effluent Limitations

1. SIP and Basin Plan Compliance Schedule Requirements.

The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or the NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for

limitations derived from Basin Plan WQOs are based on the Basin Plan. Both the SIP and the Basin Plan require the discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule. The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:

- Descriptions of diligent efforts the Discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the 2004 Basin Plan Amendment. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in more stringent limitations. The basis for compliance schedules is given in **Appendix F-4** of this Fact Sheet.

2. Feasibility Evaluation

On January 10, 2007, the Discharger submitted an infeasibility analysis (infeasibility analysis), asserting it is infeasible to immediately comply with the WQBELs, calculated according to SIP Section 1.4, for mercury and selenium at Discharger Point 001, and for mercury, selenium, and cyanide at Discharge Point 002. Regional Water Board staff performed statistical analysis using self-monitoring data from January 2002 through December 2005 to compare the mean, 95th percentile, and 99th percentile with the long-term average (LTA), AMEL, and MDEL, respectively, to confirm if it is feasible for the Discharger to comply with the WQBELs. If any LTA, AMEL, or MDEL exceed the mean, 95th percentile, or 99th percentile, respectively, the infeasibility for the Discharger to comply with WQBELs is confirmed statistically. When the statistical analysis is not meaningful duo to lack of data, or due to lack of appropriate distribution fit to the effluent data, a direct comparison between MEC and AMEL is made; infeasibility is confirmed when the MEC is greater than the AMEL. If infeasibility is confirmed, interim effluent limitations are established. The table below shows these comparisons in µg/L:

Table F-23. Summary of Feasibility Analysis and Interim Limitations (unit: µg/L)

	Mean / LTA	95th vs. AMEL	99th vs. MDEL	Feasible to Comply
Mercury (001)	0.018>0.01	0.05>0.018	0.089>0.046	No
Mercury (002)	0.019>0.0035	0.13>0.012	0.4>0.038	No
Selenium (001)	8.4>2.3	18>3.9	22>8.7	No
Cyanide (001)	0.66<2.0	MEC=4>AMEL=3.2		No
Cyanide (002)	4.8>0.3	15>2.9	19>6.4	No

For dioxin-TEQ compounds for both discharge points, due to limited effluent data, there is uncertainty in determining compliance or establishing an interim limitation. In addition, the Minimum Levels (MLs) developed for 2,3,7,8-TCDD and 16 congeners (referred to as dioxins) by the Regional Water Board and BACWA range from 5 pg/L to 50 pg/L, which are higher than the WQBELs. Because Order No. 00-025 did not include an effluent limitation for dioxin-TEQ, and data is insufficient to statistically determine an interim limitation for this pollutant, an interim limitation is not established by the Order; however, the Order includes a 10-year schedule for compliance with final limitations and requires additional monitoring. An interim limitation may be calculated and established as a discharge limitation, when sufficient data for dioxin-TEQ are available. As a result, this permit does not contain an interim limitation for dioxin-TEQ.

3. Compliance Schedule and Interim Effluent Limitations

This Order establishes a compliance schedule until April 27, 2010 for mercury, cyanide, and selenium. The final WQBELs for the above pollutants shall become effective on April 28, 2010, or until the Regional Water Board adopts the TMDLs for mercury and selenium or SSOs for cyanide. This Order includes cyanide WQBELs based on the draft SSOs. Since the compliance schedules extend beyond 1 year, pursuant to the SIP and 40 CFR §122.47, the Regional Water Board shall establish interim numeric limitations and interim requirements to control the pollutants. To maintain existing water quality, this Order establishes interim limits for mercury (001 and 002), selenium (001), and cyanide (001 and 002) based on the previous permit limits or existing plant performance, whichever is more stringent, unless antibacksliding and antidegradation requirements are satisfied. **Attachment F-4** of the Fact Sheet details the general basis for final compliance dates. The Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met. Specific bases for these interim limits are described in the following findings for these pollutants.

Discharge Point 001

1) Mercury – There is no effluent limitation for mercury in the previous permit. Therefore, an interim limit of 0.16 µg/L based on recent performance (99.87th percentile or mean plus 3 standard deviations) is established as the interim limit, expressed as a daily maximum. The establishment of a performance-based effluent limit is allowed by CWA Section 404(o)(2)(C) and (E). This interim limit

will remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on TMDL or additional data. A maximum compliance schedule is allowed for mercury because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits.

2) Selenium – There is no effluent limitation for selenium in the previous permit. Therefore, an interim limit of 26 µg/L based on recent performance (99.87^{th} percentile or mean plus 3 standard deviations) is established as the interim limit, expressed as a daily maximum. The establishment of a performance-based effluent limit is allowed by CWA Section 404(o)(2)(C) and (E). This interim limit will remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on TMDL or additional data. A maximum compliance schedule is allowed for selenium because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits.

3) Cyanide – There is no effluent limit for cyanide in the previous permit. Due to high censoring of the effluent data set, it is not feasible to calculate a 99.87^{th} percentile; therefore, the SIP minimum level of 5 µg/L is set as the interim limitation, expressed as a daily maximum, and will remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on an SSO or additional data. A maximum compliance schedule is allowed for cyanide because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits.

Discharge Point 002

1) Mercury - The previous permit established the following interim, concentration-based and mass-based effluent limitations for mercury at Discharge Point 002.

Concentration-Based	Mass-Based
0.21 µg/L – average monthly	0.04 lbs/month – running annual average
1.0 µg/L – maximum daily	

The 99.87^{th} percentile of the mercury effluent data is calculated to be 1.24 µg/L, the previous permit limits are more stringent. Therefore, the previous permit limits are retained as the interim effluent limits and will remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on TMDL or additional data. The establishment of a performance-based effluent limit is allowed by CWA Section 404(o)(2)(C) and (E). A maximum compliance schedule is allowed for mercury because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits.

2) Cyanide – There is no effluent limit for cyanide in the previous permit. Therefore, an interim limit of 22.8 µg/L based on recent performance (99.87th percentile or mean plus 3 standard deviations) is established as the interim limit, expressed as a daily maximum, and will remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on an SSO or additional data. The establishment of a performance-based effluent limit is allowed by CWA Section 404(o)(2)(C) and (E). A maximum compliance schedule is allowed for cyanide because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits.

4. Mercury Interim Mass Emission Limitation

This Order includes an interim performance-based mercury mass effluent limitations of 0.080 and 0.026 kg/month for Discharge Points 001 and 002, respectively. These performance-based mass effluent limitations are intended to maintain the discharges at current loadings. The mass limitations are calculated using the ultra-clean data collected from January 2002 through December 2005 as they better reflect the Discharger's performance. The recalculated mass limit is a reflection of better mercury effluent data (sampling and analytical techniques have improved). (See **Appendix F-5** for the mercury mass limitation calculation.) The mass limits will maintain current loadings until a TMDL is established for San Francisco Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL.

The inclusion of interim performance-based mass limits for bioaccumulative pollutants is consistent with the guidance described in section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass load of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

5. This Order also establishes interim requirements in a provision for development and/or improvement of a Pollution Prevention and Minimization Program to reduce pollutant loadings to the facilities and for submittal of annual reports on this Program.

E. Whole Effluent Toxicity

1. Whole Effluent Acute Toxicity.

a. **Discharge Point 001.** This Order does not include whole effluent acute toxicity effluent limits for Discharge Point 001. Discharge from 001 is primarily once-through cooling water, taken from the bay; 100 percent of this discharge is from the bay. Therefore, it is unlikely that this discharge will cause toxicity in Carquinez Strait, particularly given the dilution that occurs at the deep water outfall diffuser.

b. **Discharge Point 002.** This Order includes effluent limits for Discharge Point 002 for whole effluent acute toxicity that are unchanged from the previous Order. No acute toxicity was ever observed. All bioassays shall be performed according to

the U.S. EPA approved method in 40 CFR 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition." The Discharger is required to use the 5th Edition method for compliance determination upon the effective date of this Order.

2. Whole Effluent Chronic Toxicity

a. **Basin Paln ETCP.** The Basin Plan adopted an Effluent Toxicity Characterization Program (ETCP), with the goal of developing and implementing toxicity limits for each discharger based on actual characteristics of both receiving waters and waste streams. Dischargers were required, including this Discharger, to monitor their effluent using critical life stage toxicity tests to generate information on toxicity test species sensitivity and effluent variability to allow development of appropriate chronic toxicity effluent limitations. In 1988 and 1991, selected dischargers conducted two rounds of effluent characterization. A third round was completed in 1995. Regional Water Board guidelines for conducting toxicity tests and analyzing results were published in 1988 and last updated in 1991. The Regional Water Board implements water quality objectives for toxicity through the ETCP.

b. **Discharge Point 001.** This permit does not include whole effluent chronic toxicity requirements for Discharge 001. The Discharger conducted a variability phase test as required by ETCP. The results of the test using red abalone, purple sea urchin and marine diatom show that Discharge 001 does not contribute additional chronic toxicity to the influent bay water. Thus this Order continues the existing condition that no chronic toxicity test is required for Discharge 001.

c. **Discharge Point 002.**

(1) **Permit Requirements.** The nature and flow volume of Discharge 002 suggests that there is a low potential for the treated effluent to cause chronic toxicity in Carquinez Strait. There were no chronic toxicity requirements in the previous permit. However, in order to characterize this effluent and provide data for future permit reissuance, this permit includes new requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, U.S. EPA and State Water Board Task Force guidance, and BPJ. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "trigger" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are consistent with the CTR and SIP requirements. If monitoring shows no chronic toxicity, this requirement may be removed for next permit reissuance.

(2) **Chronic Toxicity Trigger.** This Order includes a chronic toxicity trigger, which is a single sample maximum of 10 TUc. A single sample trigger is included based on the monitoring frequency and Basin Plan Table 4-5.

(3) **Permit Reopener.** The Regional Water Board will consider amending this permit to include numeric toxicity limits if the Discharger fails to aggressively implement all reasonable control measures included in its approved TRE workplan, following detection of consistent significant non-artifactual toxicity.

F. Intake Water Credits for Discharge 001

1. 40 CFR §122.45(g) and Section 1.4.4 of the SIP allows intake water credits where specified conditions are met.

   a. **40 CFR §122.45(g).** 40 CFR §122.45(g) allows credit for pollutants in intake water, in some cases where the facility is faced with situations in which limits are difficult or impossible to meet with BAT/BCT technology. Net credits are authorized only up to the extent necessary to meet the applicable limitation or standard, and if the intake water is taken from the same body of water into which the discharge is made.

   As previously described in this Order, Discharge 001 only contains once-through cooling water taken from the Bay; the Refinery does not add any pollutants into the discharge, nor does it treat the cooling water before discharge. Due to the characteristics of the discharge, BAT/BCT technologies may not result in any net environmental benefit, Based on this, Regional Water Board staff determined that the Discharger meets the conditions specified in 40 CFR §122.45(g).

   b. **Section 1.4.4 of the SIP.** The SIP allows intake water credits provided the Discharger meets the following conditions to the satisfaction of the Regional Water Board:

      1) The observed maximum ambient background concentration and the intake water concentration of the pollutant exceed the most stringent applicable WQO/WQC for that pollutant;

      2) The intake water credits are consistent with any TMDL applicable to the discharge;
      3) The intake water is from the same water body as the receiving water body;
      4) The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and
      5) The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

      The Discharger submitted an intake water credit request and additional information on August 7, 2006 and January 5, 2007, respectively (see **Attachment F-7**), justifying that it qualifies for intake water credit based on the SIP requirements at Discharge Point 001.

The Discharger sampled for arsenic, copper, lead, mercury, nickel, selenium, zinc, cyanide, and bis(2-ethylhexyl)phthalate at both intake water and discharge from February 2002 through July 2004. As discussed above, all pollutants in the discharge were detected above the applicable WQO/WQC.

The Discharger indicated in its August 7 request, "The discharge point is hydrologically connected to the intake source. All of the non-contact cooling intake water is from the Carquinez Strait and the intake structure is located approximately 500 feet upstream of Discharge Point 001. As 100 percent of the water discharged at 001 is from the same receiving water body, the intake water pollutants would have reached the vicinity of the discharge point in the receiving water within a reasonable time and with the same effect had it not been diverted by its use for cooling."

The Discharger performed statistical analysis on intake and effluent water quality data. The analysis shows that either intake concentrations are higher than those in the effluent or there is no significant difference between the intake and effluent quality for the above pollutants, except for nickel, where the higher intake water concentrations might be due to analytical variability.

Based on the Discharger's justifications, the Regional Water Board determines that C&H is qualified to receive intake water credit for its discharge of once-through cooling water through Discharge Point 001.

2. **Application of Intake Water Credit.**

Intake water credits are to offset any concentrations of the pollutant found in the intake water, and are only allowed on a pollutant-by-pollutant and discharge-by-discharge basis. Whenever an effluent concentration exceeds the effluent limits specified in this Order, the discharge may receive intake water credit (a) if the intake water concentration sampled during the same day is higher than the effluent concentration, or (b) if it can be statistically demonstrated that the effluent concentration is not significantly higher than the intake water concentrations. For the statistical analysis, the Discharger may establish a 90% confidence interval, based on the most recent intake water monitoring data (if intake water concentrations do not show a trend, then the analysis shall include as many historical data as possible - this may require a separate statistical analysis to determine the range of historical data that can be used in establishing a background condition); if the effluent data is higher than the upper confidence limit of the intake water confidence interval, then it is a violation. The Discharger will need to update the background condition with newly collected data whenever an analysis is needed.

G. Antidegradation Analysis

1. Changes in Flow and Pollutant Loads and Concentrations

The total flow from the facility is the combined C&H Sugar process wastewater flow and CSD municipal wastewater flow. The process flow could increase with the

foreseeable sugar production increase. The previous permit was based on a raw sugar melt rate of 2,810 tons per day, whereas this Order is based on 3,300 tons per day, an increase of about 17%. However, the municipal discharge is unlikely to increase much, if at all. The community of Crockett is relatively small and its potential for growth is limited due to geographic constraints. No significant development is proposed in the Crockett service area; therefore, CSD's dry weather flow is likely to remain close to existing levels. During high flow periods, CSD's flow is dominated by infiltration and inflow of storm water, which will not increase as a result of this Order. Furthermore, the municipal flow is limited by the fact that CSD fully uses its capacity allotment under its treatment contract with C&H.

All concentration-based effluent limits in this Order are either new, the same as those of the previous permit, or lower than those of the previous permit. The only exception is copper due to the incorporation of the newly developed water effect ratio (WER). The BOD_5 and TSS limits in this Order are expressed in terms of loads. To the extent that these limits are based on the new raw sugar melt rate, they are higher in this than the previous permit. However, the underlying BOD_5 and TSS concentration assumptions are the same as those used for the previous permit.

2. Potential for Water Quality Degradation

The concentration of copper discharges is unlikely to change because the Discharger proposes no changes to its treatment process. The Discharger will maintain its current treatment performance because it cannot manipulate its processes to adjust effluent copper levels independently of other treatment parameters. To maintain compliance with other effluent limits, the Discharger will maintain its current performance with respect to copper. Moreover, pollution minimization requirements are designed to maintain current performance.

Any possible small changes in Carquinez Strait copper concentrations would not be measurable, and no observable water quality degradation would occur. Ambient San Francisco Bay copper concentrations are very consistent from year to year at least partly due to the dominant role of sediments in determining dissolved copper concentrations. Sediments are a large repository of copper, and when sediments are suspended, copper may desorb and become dissolved, accounting for a large fraction of the dissolved ambient concentration. For this reason, the amount copper in Carquinez Strait is unlikely to change much, if at all, due to any changes resulting from this Order.

The foreseeable increase in TSS will be small and incremental, particularly when compared to other TSS sources to Carquinez Strait, through which all Central Valley discharges flow. Because the Discharger uses a deep water outfall equipped with a diffuser that provides greater than 10:1 dilution, the small change in TSS load will not be measurable in Carquinez Strait, and no observable water quality degradation will occur.

Likewise, the foreseeable increase in BOD_5 will also be small and incremental, particularly when compared to other BOD_5 sources to Carquinez Strait. Because the

Discharger uses a deep water outfall equipped with a diffuser, the small change in BOD_5 load will not be measurable in Carquinez Strait, and no observable water quality degradation will occur. Moreover, BOD_5 degrades relatively quickly, making increases in BOD_5 less observable.

3. Consistency with Antidegradation Policies

Carquinez Strait meets water quality standards for copper, TSS, and BOD_5. It is not listed as impaired by any of these pollutants. Therefore, the quality of Carquinez Strait waters exceeds levels necessary to support propagation of fish and wildlife, and recreation. In this case, some degradation is allowed pursuant to antidegradation policies, provided that the Water Board finds that (1) the lowering of water quality is necessary to accommodate important economic or social development in the area; (2) the reduced water quality fully protects existing beneficial uses; and (3) the highest statutory and regulatory requirements are imposed. No measurable or observable degradation is anticipated with respect to copper, TSS, or BOD_5.

Any degradation associated with this Order would accommodate commensurate economic and social development in the area. Increased TSS and BOD_5 loads will result from increased sugar production. In the unlikely event that copper concentrations were to rise, the increase would result from increased sugar production or possibly increased housing in Crockett. New housing provides a place for people to live, and increasing sugar production increases employment and tax revenues. Increased housing, employment, and tax revenues serve the economic and social development interests of the people of California.

The copper, TSS, and BOD_5 limits fully protect beneficial uses. Available data demonstrate that the new copper WER better reflects the water chemistry characteristics of Carquinez Strait than the default WER, which is more conservative than necessary to protect beneficial uses. Increased TSS and BOD_5 discharges will not cause a nuisance or depress oxygen concentrations such that beneficial uses are adversely affected because they will occur through a deep water outfall equipped with a diffuser to provide rapid mixing.

The copper, TSS, and BOD_5 limits are consistent with all applicable statutes and regulations. The copper limits are derived from applicable water quality standards in accordance with the SIP. The TSS and BOD_5 limits are derived from effluent guidelines for sugar refining and publicly owned treatment works. The limits are based on 40 CFR 125.3(c)(2) and (3) and rely on Best Professional Judgment. They represent Best Practicable Control Technology (BPT) and Best Conventional Pollutant Control Technology (BCT). Therefore, they represent the best practicable treatment or control available.

H. Storm Water Limitations

The storm water discharge shall not be outside the pH range of 6.5 to 8.5, and shall not have visible color or oil: These limitations are from the previous permit, and are based retained from the previous permit.

I. Land Discharge Specifications

N/A

J. Reclamation Specifications

N/A

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. Temperature Limitations. These limitations are retained from the previous permit and are based on the Thermal Plan.

2. Receiving Water Limitations V.A.2 through V.A.4 (conditions to be avoided). These limitations are in the previous permit and are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan.

3. Receiving Water Limitations V.A.5 (compliance with State Law). This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

B. Groundwater

N/A

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger are to:

1. Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board,

2. Facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge,

3. Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and to

4. Prepare water and wastewater quality inventories.

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

The MRP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board's policies. The MRP also contains a sampling program specific for this Facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

A. Influent Monitoring

Flow monitoring requirements at Monitoring Locations I-1 (salt water intake) and I-2 (CSD), and COD monitoring requirements at P-1 (surge tank influent) are retained from the previous permit.

B. Effluent Monitoring

Discharge Point 001.

- Monitoring requirements for flow, BOD_5, pH, temperature, and conductivity are retained from the previous permit.
- The MRP establishes routine monitoring for toxics with effluent limitations established by this Order [As, Cu, Pb, Hg, Ni, Se, Zn, CN, dioxin-TEQ, and bis (2-ethylhexyl) phthalate].
- The MRP requires the Discharger to continue to sample for priority pollutants om accordance to the August 6, 2001 letter. The results will be used for RPA and effluent limit calculation for next permit reissuance.

Discharge Point 002.

- Monitoring requirements for the following parameters are retained from the previous permit: flow, dissolved oxygen, dissolved sulfides, pH, temperature, total coliform bacteria, total residual chlorine, hydrogen peroxide usage, settleable matter, and oil and grease.
- The MRP establishes monitoring requirements for acute toxicity at a frequency of one time every two weeks and chronic toxicity at once during the permit term or annually if toxicity is ever observed; whereas Order No. 00-025 had required only acute (not chronic) toxicity monitoring.
- The MRP establishes routine monitoring for toxics with effluent limitations established by this Order [Cu, Pb, Hg, CN, dioxin-TEQ, and bis (2-ethylhexyl) phthalate].
- Specific monitoring requirements for several toxics or families of toxic pollutants (total phenolic compounds, extractable hydrocarbons, purgeable hydrocarbons,

PAHs, organochlorine pesticides and PCBs, nitrogen and phosphorous containing pesticides, and chlorinated herbicides and acids, and tributyltin) are no longer required, because the MRP requires routine monitoring for toxics with effluent limitations, as well as monitoring for all CTR pollutants.

Discharge Points 003 – 016

- This order retains the same monitoring requirements for storm water discharges.

C. Whole Effluent Chronic Toxicity Screening

The screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for compliance monitoring as part of the compliance requirements. This requirement is based on the Basin Plan and BPJ.

D. Receiving Water Monitoring

1. Surface Water

The MRP retains all receiving water monitoring requirements from Order No. 00-025. Hardness monitoring is new and optional, if the Discharger wishes to use site-specific hardness for WQOs/WQC calculation for next permit reissuance.

2. Groundwater

N/A

E. Other Monitoring Requirements

N/A

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which, in accordance with 40 CFR 122.41 - 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in **Attachments D** and **G** of this Order.

B. Monitoring and Reporting Requirements

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (**Attachment E**), Standard Provisions and SMP, Part A (**Attachment G)** of the Permit. This provision requires compliance with these documents, and is based on 40 CFR 122.63. The Standard Provisions and SMP, Part A are standard requirements in almost all NPDES permits issued by the Regional Water Board, including this Order. They contain definitions of terms, specify general sampling and analytical protocols, and set out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board's policies. The MRP contains a sampling program specific for the facility. It

defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

2. Special Studies and Additional Monitoring Requirements

a. **Effluent Characterization for Selected Constituents.** This Order includes effluent limitations and routine monitoring requirements for toxic pollutants which are present in effluent at levels which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard. Monitoring for other toxic pollutants is required to provide on-going characterization of the discharges from the facility so that effluent limitations can be established, if necessary. The Discharger is required to monitor effluent in accordance with its Sampling Plan, which was prepared pursuant to August 6, 2001 sent by the Regional Water Board to all dischargers.

b. **Ambient Background Monitoring.** This provision, to continue to conduct receiving water monitoring, will provide on-going characterization of the receiving water and is based on the previous Order and the Basin Plan.

c. **CWA Section 316 (b) Requirements.**

CWA Section 316 (b) addresses adverse environmental impacts caused by the intake of once-through cooling water. Such impacts are most commonly described to include impingement of aquatic life on cooling water intake structures and entrainment of aquatic life within cooling water flows where it is subject to thermal and physical stresses. CWA Section 316 (b) requires that NPDES permits include requirements for the best technology available in the location, design, construction, and capacity of cooling water intake structures to minimize adverse environmental impacts. The Regional Water Board, like other permitting authorities, has been implementing Section 316 (b), using best professional judgment, on a case-by-case basis for more than 25 years; however, in 2001, USEPA began to promulgate rules to implement Section 316 (b).

On November 9, 2001 and December 26, 2002, USEPA finalized Phase I 316 (b) rules, applicable to new facilities that withdraw more than 2 MGD of water and use at least 25 percent of that water solely for cooling purposes. On February 16, 2004, USEPA finalized Phase II rules, applicable to existing power

generation facilities with cooling water intake structures designed for intake flows of 50 MGD or greater and using at least 25 percent of that water solely for cooling purposes. Phase III rules, which were intended to address existing facilities not covered by the Phase II rules, were proposed on November 1, 2004, and became effective on July 17, 2006. By adopting Phase III rules in a substantially simpler form than the proposed rules, USEPA concluded that NPDES permitting authorities should continue to implement Section 316 (b) for existing facilities not covered by the Phase II rule (except for certain offshore oil and gas facilities) on a case-by-case basis, using best professional judgment.

Provision VI. C. 2. d of this Order, therefore, reflects the best professional judgment of the Regional Water Board in implementing CWA Section 316 (b) - to establish the best technology available to minimize adverse environmental impacts associated with the facility's cooling water intake structure(s).

Provision VI. C. 2. d requires the Discharger to provide the following information to the Regional Water Board.

- A list and summary of historical studies characterizing: baseline biological conditions in area of influence of the facility's cooling water intake structure(s); impingement mortality and entrainment attributed to the facility's cooling water intake structure(s); and the physical conditions of Carquinez Strait in the vicinity of the facility's cooling water intake structure(s). The Discharger must describe the extent to which historical data are representative of current conditions and document that the data were collected using appropriate quality assurance/quality control procedures.

- A summary of source water physical data and cooling water intake structure data.

- A summary of past and on-going consultations with federal, state, and local fish and wildlife agencies regarding environmental impacts of the facility's cooling water intake structure(s).

- A sampling plan for field studies to develop or update scientifically valid estimates of impingement mortality and entrainment attributed to the facility's cooling water intake structure(s). As necessary, the sampling plan shall provide for source water, baseline biological characterization in the vicinity of the cooling water intake structure(s), in addition to identifying/describing methods to estimate impingement mortality and entrainment.

In large part, the 316 (b) requirements established by this Order for the C&H Sugar Company facility are based on the following requirements (for inclusion into NPDES permits) of the Phase II rule, which is codified at 40 CFR Part 125, Subpart J.

- Proposal for Information Collection [40 CFR 125.95 (b) (1)]

- Source water physical data, cooling water intake structure data, and cooling water system data [40 CFR 122.21 (r) (2, 3, and 5)]
- Comprehensive Demonstration Study, to include:
  - Source Waterbody Flow Information [40 CFR 125.95 (b) (2)]
  - Impingement Mortality and/or Entrainment Characterization Study [40 CFR 125.95 (b) (3)]
  - Design and Construction Technology Plan and a Technology Installation and Operation Plan [40 CFR 125.95 (b) (4)]
  - Restoration Plan [40 CFR 125.95 (b) (5)]
  - Information to Support Site-Specific Determination of BAT [40 CFR 125.95 (b) (6)]
  - Verification Monitoring Plan [40 CFR 125.95 (b) (6)]

d. **Mass offset.** This option is provided to encourage the Discharger to implement aggressive reduction of mass loads to the receiving water.

3. Pollution Minimization

This provision is based on Chapter 4 of the Basin Plan and Section 2.4.5 of the SIP.

Additionally, on October 15, 2003, the Regional Water Board adopted Resolution R2-2003-0096 in support of a collaborative working approach between the Regional Water Board and the Bay Area Clean Water Agencies to promote Pollution Minimization Program development and excellence. Specifically, the Resolution embodies a set of eleven guiding principles that will be used to develop tools such as "P2 menus" for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key principles in the Resolution include promoting watershed, cross-program and cross-media approaches to pollution prevention, and jointly developing tools to assess program performance that may include peer reviews, self-audits or other formats.

4. Action Plan for Cyanide

This provision is based on the proposed Basin Plan Amendment that will adopt the site-specific objectives for cyanide for San Francisco Bay (Regional Water Board Resolution R2-2006-0086).

5. Action Plan for Copper

This provision is based on the proposed Basin Plan Amendment that will adopt the site-specific objectives for copper for San Francisco Bay (most recent document dated March 2, 2007).

6. Storm Water Pollution Prevention Plan and Best Management Practices Plan

This provision is retained from the previous Order. This provision requires ongoing implementation of the Storm Water Pollution Prevention Plan and Best Management Practices Plan, to ensure compliance with Federal storm water pollution controls. The SWPPP is based on the Standard Provisions (**Attachment G**), and BMPP on 40 CFR 125, Subpart K.

7. Construction, Operation, and Maintenance Specifications

a. **Wastewater Facilities, Review and Evaluation, Status Reports**. This provision is based on the previous permit and the Basin Plan.

b. **Operations and Maintenance Manual, Review and Status Reports.** This provision is based on the Basin Plan, the requirements of 40 CFR §122, and the previous permit.

c. **Contingency Plan, Review and Status Reports.** This provision is based on the Basin Plan, the requirements of 40 CFR §122, and the previous permit.

8. Special Provisions for Municipal Facilities

a. **Sludge Management Practices Requirements.** This provision is retained from the previous Order.

b. **Sanitary Sewer Overflows and Sewer System Management Plan.** This provision is to explain the Order's requirements as they relate to CSD's collection system, and to promote consistency with the State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Overflow (SSO WDRs) and a related Monitoring and Reporting Program (Order No. 2006-0003-DWQ). The bases for these requirements are described elsewhere in this Fact Sheet for those requirements.

c. **Settleable Matter Reduction.** This provision is retained from the previous Order. Due to significant amount of inflow and infiltration into CSD's collection system, the wet weather sewage flow from the CSD typically carries a high levels of settable matters. CSD has previously submitted a facilities plan for sewer system improvements. One of the purposes of the project is to reduce inflow and infiltration, and to improve the grit removal facilities to reduce the present operation and maintenance problems related to grit carryover to the JTP. This permit requires CSD to continue this effort as condition for interim effluent limits for settleable matter.

9. Compliance Schedules and Compliance with Final Effluent Limitations.

Mercury, Selenium, Dioxin-TEQ, and Cyanide Compliance Schedules: This provision is based on Basin Plan at p. 4-14 (Compliance Schedules), 40 CFR 122.47(a)(3), SIP 2.2.1. Maximum compliance schedules are allowed because of the considerable uncertainty in determining effective measures (e.g., pollution

prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. In our view, it is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan (page 4-25), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology plant.

VIII. PUBLIC PARTICIPATION

The San Francisco Bay Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for C&H Sugar Company. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the Contra Costa Times on February 10, 2007.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order, Attention Tong Yin.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on February 15, 2007.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	April 11, 2007
Time:	9:00 a.m.
Location:	Elihu Harris State Office Building 1515 Clay Street Oakland, CA 1st floor Auditorium
Contact:	Ms. Tong Yin, Phone: (510)622-2418; email: TYin@waterboards.ca.gov

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is www.waterboards.ca.gov /sanfranciscobay where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (510) 622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Ms. Tong Yin at (510) 622-2418, or by e-mail at TYin@waterboards.ca.gov .

IX. APPENDICES

Appendix F-1. Effluent Data for Priority Pollutants
Appendix F-2. RPA Results for Priority Pollutants
Appendix F-3. Calculation of Final WQBELs
Appendix F-4. General Basis for Final Compliance Dates
Appendix F-5. Mercury Mass Limit Calculation
Appendix F-6. Discharger's Feasibility Analysis
Appendix F-7. Discharger's Intake Water Credit Request

Appendix F-1(1)
Effluent Data for Priority Pollutants for Discharge Point 001

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

No.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
2	Antinomy	9/13/2002	ND	0.2	ug/l	2.5	0.2		1
3	Antinomy	10/11/2002	ND	0.2	ug/l	5	0.2		1
4	Antinomy	12/11/2002	ND	0.2	ug/l	1	0.2		1
5	Antinomy	4/11/2003	ND	0.2	ug/l	1	0.2		1
6	Antinomy	5/9/2003	ND	0.2	ug/l	1	0.2		1
7	Antinomy	7/3/2003	ND	0.2	ug/l	2.5	0.2		1
8	Antinomy	8/1/2003	ND	0.2	ug/l	2.5	0.2		1
9	Antinomy	9/12/2003	ND	0.2	ug/l	2.5	0.2		1
10	Antinomy	11/7/2003	ND	0.2	ug/l	2.5	0.2		1
11	Antinomy	1/16/2004	ND	0.2	ug/l	1	0.2		1
12	Antinomy	2/13/2004	ND	0.2	ug/l	2.5	0.2		1
13	Antinomy	3/12/2004	ND	0.2	ug/l	1	0.2		1
14	Antinomy	4/23/2004	ND	0.2	ug/l	0.5	0.2		1
15	Antinomy	5/7/2004	ND	0.2	ug/l	2.5	0.2		1
16	Antinomy	6/4/2004	ND	0.2	ug/l	2.5	0.2		1
17	Antinomy	7/16/2004	ND	0.2	ug/l	1	0.2		1
18	Antinomy	1/8/2003	J	0.2	ug/l	0.5	0.2		1
19	Antinomy	1/9/2002	J	0.3	ug/l	0.5	0.01		1
20	Antinomy	5/24/2002	J	0.3	ug/l	1	0.01		1
21	Antinomy	2/15/2002	J	0.4	ug/l	0.5	0.01		1
22	Antinomy	11/8/2002	J	0.4	ug/l	1	0.2		1
23	Antinomy	4/12/2002	J	0.6	ug/l	2.5	0.01		1
24	Antinomy	6/7/2002	J	0.6	ug/l	1	0.2		1
25	Antinomy	2/14/2003	J	0.6	ug/l	1	0.2		1
26	Antinomy	3/14/2003	J	0.6	ug/l	1	0.2		1
27	Antinomy	7/19/2002	J	0.7	ug/l	1	0.2		1
28	Antinomy	6/6/2003	J	1	ug/l	2.5	0.2		1
29	Antinomy	8/29/2003	J	1	ug/l	2.5	0.2		1
30	Antinomy	10/10/2003	J	1.4	ug/l	2.5	0.2		1
31	Antinomy	12/5/2003	J	1.4	ug/l	2.5	0.2		1
32	Antinomy	3/15/2002		0.6	ug/l	0.5	0.01		1
33	Arsenic	3/12/2004		6	ug/l	1	0.2		2
34	Arsenic	5/9/2003		7	ug/l	1	0.2		2
35	Arsenic	1/9/2002		11	ug/l	0.5	0.08		2
36	Arsenic	1/8/2003		11	ug/l	0.5	0.2		2
37	Arsenic	4/23/2004		11	ug/l	0.5	0.2		2
38	Arsenic	3/15/2002		12	ug/l	0.5	0.08		2
39	Arsenic	1/16/2004		13	ug/l	1	0.2		2
40	Arsenic	2/15/2002		14	ug/l	0.5	0.08		2
41	Arsenic	2/13/2004		16	ug/l	2.5	0.2		2
42	Arsenic	11/8/2002		21	ug/l	1	0.2		2
43	Arsenic	4/12/2002		22	ug/l	2.5	0.08		2
44	Arsenic	6/6/2003		22	ug/l	2.5	0.2		2
45	Arsenic	7/16/2004		22	ug/l	1	0.2		2
46	Arsenic	8/7/2002		23	ug/l	5	0.2		2
47	Arsenic	6/7/2002		24	ug/l	1	0.2		2
48	Arsenic	5/24/2002		25	ug/l	1	0.08		2
49	Arsenic	4/11/2003		27	ug/l	1	0.2		2
50	Arsenic	7/3/2003		27	ug/l	2.5	0.2		2
51	Arsenic	8/1/2003		27	ug/l	2.5	0.2		2
52	Arsenic	5/7/2004		29	ug/l	2.5	0.2		2
53	Arsenic	6/4/2004		29	ug/l	2.5	0.2		2
54	Arsenic	9/12/2003		32	ug/l	2.5	0.2		2
55	Arsenic	2/14/2003		33	ug/l	1	0.2		2
56	Arsenic	7/19/2002		35	ug/l	1	0.2		2
57	Arsenic	12/11/2002		36	ug/l	1	0.2		2
58	Arsenic	9/13/2002		38	ug/l	2.5	0.2		2
59	Arsenic	10/11/2002		38	ug/l	5	0.2		2
60	Arsenic	12/5/2003		38	ug/l	2.5	0.2		2
61	Arsenic	3/14/2003		39	ug/l	2.5	0.2		2

No.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
664	2-Methyl-4,6-Dinitrophenol	7/18/2002	ND	0.9	ug/l	5	0.9		48
665	2-Methyl-4,6-Dinitrophenol	1/16/2003	ND	0.9	ug/l	5	0.9		48
666	2-Methyl-4,6-Dinitrophenol	8/14/2003	ND	0.9	ug/l	5	0.9		48
667	2-Methyl-4,6-Dinitrophenol	8/28/2003	ND	0.9	ug/l	5	0.9		48
668	2-Methyl-4,6-Dinitrophenol	1/15/2004	ND	0.9	ug/l	5	0.9		48
669	2-Methyl-4,6-Dinitrophenol	7/16/2004	ND	0.9	ug/l	5	0.9		48
670	2-Methyl-4,6-Dinitrophenol	1/13/2005	ND	2	ug/l	5	2		48
671	2,4-Dinitrophenol	1/9/2002	ND	0.3	ug/l	5	0.3		49
672	2,4-Dinitrophenol	7/18/2002	ND	0.6	ug/l	5	0.6		49
673	2,4-Dinitrophenol	1/16/2003	ND	0.6	ug/l	5	0.6		49
674	2,4-Dinitrophenol	8/14/2003	ND	0.6	ug/l	5	0.6		49
675	2,4-Dinitrophenol	8/28/2003	ND	0.6	ug/l	5	0.6		49
676	2,4-Dinitrophenol	1/15/2004	ND	0.6	ug/l	5	0.6		49
677	2,4-Dinitrophenol	7/16/2004	ND	0.6	ug/l	5	0.6		49
678	2,4-Dinitrophenol	1/13/2005	ND	2	ug/l	5	2		49
679	2-Nitrophenol	1/9/2002	ND	0.3	ug/l	5	0.3		50
680	2-Nitrophenol	7/18/2002	ND	0.7	ug/l	5	0.7		50
681	2-Nitrophenol	1/16/2003	ND	0.7	ug/l	5	0.7		50
682	2-Nitrophenol	8/14/2003	ND	0.7	ug/l	5	0.7		50
683	2-Nitrophenol	8/28/2003	ND	0.7	ug/l	5	0.7		50
684	2-Nitrophenol	1/15/2004	ND	0.7	ug/l	5	0.7		50
685	2-Nitrophenol	7/16/2004	ND	0.7	ug/l	5	0.7		50
686	2-Nitrophenol	1/13/2005	ND	1.1	ug/l	5	1.1		50
687	4-Nitrophenol	1/9/2002	ND	0.2	ug/l	5	0.2		51
688	4-Nitrophenol	7/18/2002	ND	0.6	ug/l	5	0.6		51
689	4-Nitrophenol	1/16/2003	ND	0.6	ug/l	5	0.6		51
690	4-Nitrophenol	8/14/2003	ND	0.6	ug/l	5	0.6		51
691	4-Nitrophenol	8/28/2003	ND	0.6	ug/l	5	0.6		51
692	4-Nitrophenol	1/15/2004	ND	0.6	ug/l	5	0.6		51
693	4-Nitrophenol	7/16/2004	ND	0.6	ug/l	5	0.6		51
694	4-Nitrophenol	1/13/2005	ND	1	ug/l	5	1		51
695	3-Methyl-4-Chlorophenol	1/9/2002	ND	0.3	ug/l	1	0.3		52
696	3-Methyl-4-Chlorophenol	7/18/2002	ND	0.5	ug/l	1	0.5		52
697	3-Methyl-4-Chlorophenol	1/16/2003	ND	0.5	ug/l	1	0.5		52
698	3-Methyl-4-Chlorophenol	8/14/2003	ND	0.5	ug/l	1	0.5		52
699	3-Methyl-4-Chlorophenol	8/28/2003	ND	0.5	ug/l	1	0.5		52
700	3-Methyl-4-Chlorophenol	1/15/2004	ND	0.5	ug/l	1	0.5		52
701	3-Methyl-4-Chlorophenol	7/16/2004	ND	0.5	ug/l	1	0.5		52
702	3-Methyl-4-Chlorophenol	1/13/2005	ND	0.93	ug/l	1	0.93		52
703	Pentachlorophenol	1/9/2002	ND	0.4	ug/l	1	0.4		53
704	Pentachlorophenol	7/18/2002	ND	0.9	ug/l	1	0.9		53
705	Pentachlorophenol	1/16/2003	ND	0.9	ug/l	1	0.9		53
706	Pentachlorophenol	8/14/2003	ND	0.9	ug/l	1	0.9		53
707	Pentachlorophenol	8/28/2003	ND	0.9	ug/l	1	0.9		53
708	Pentachlorophenol	1/15/2004	ND	0.9	ug/l	1	0.9		53
709	Pentachlorophenol	7/16/2004	ND	0.9	ug/l	1	0.9		53
710	Pentachlorophenol	1/13/2005	ND	0.98	ug/l	1	0.98		53
711	Phenol	01/09/2002	ND	0.2	ug/L	1	0.2		54
712	Phenol	07/18/2002	ND	0.4	ug/L	1	0.4		54
713	Phenol	01/16/2003	ND	0.4	ug/L	1	0.4		54
714	Phenol	08/14/2003	ND	0.4	ug/L	1	0.4		54
715	Phenol	08/28/2003	ND	0.4	ug/L	1	0.4		54
716	Phenol	01/15/2004	ND	0.4	ug/L	1	0.4		54
717	Phenol	07/16/2004	ND	0.4	ug/L	1	0.4		54
718	2,4,6-Trichlorophenol	1/9/2002	ND	0.2	ug/l	5	0.2		55
719	2,4,6-Trichlorophenol	7/18/2002	ND	0.6	ug/l	5	0.6		55
720	2,4,6-Trichlorophenol	1/16/2003	ND	0.6	ug/l	5	0.6		55
721	2,4,6-Trichlorophenol	8/14/2003	ND	0.6	ug/l	5	0.6		55
722	2,4,6-Trichlorophenol	8/28/2003	ND	0.6	ug/l	5	0.6		55
723	2,4,6-Trichlorophenol	1/15/2004	ND	0.6	ug/l	5	0.6		55

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
62	Arsenic	11/7/2003		39	ug/l	2.5	0.2		2
63	Arsenic	8/29/2003		43	ug/l	2.5	0.2		2
64	Arsenic	10/10/2003		45	ug/l	2.5	0.2		2
65	Beryllium	1/9/2002	ND	0.06	ug/l	0.1	0.06		3
66	Beryllium	2/15/2002	ND	0.06	ug/l	0.1	0.06		3
67	Beryllium	3/15/2002	ND	0.06	ug/l	0.2	0.06		3
68	Beryllium	4/12/2002	ND	0.06	ug/l	0.5	0.06		3
69	Beryllium	5/24/2002	ND	0.06	ug/l	0.2	0.06		3
70	Beryllium	6/7/2002	ND	0.06	ug/l	0.2	0.06		3
71	Beryllium	7/19/2002	ND	0.06	ug/l	0.2	0.06		3
72	Beryllium	8/7/2002	ND	0.06	ug/l	1	0.06		3
73	Beryllium	9/13/2002	ND	0.06	ug/l	0.5	0.06		3
74	Beryllium	10/11/2002	ND	0.06	ug/l	1	0.06		3
75	Beryllium	11/8/2002	ND	0.06	ug/l	0.2	0.06		3
76	Beryllium	12/11/2002	ND	0.06	ug/l	0.2	0.06		3
77	Beryllium	1/8/2003	ND	0.06	ug/l	0.2	0.06		3
78	Beryllium	2/14/2003	ND	0.06	ug/l	0.2	0.06		3
79	Beryllium	3/14/2003	ND	0.06	ug/l	0.2	0.06		3
80	Beryllium	4/11/2003	ND	0.06	ug/l	0.2	0.06		3
81	Beryllium	5/9/2003	ND	0.06	ug/l	0.1	0.06		3
82	Beryllium	6/6/2003	ND	0.06	ug/l	0.2	0.06		3
83	Beryllium	7/3/2003	ND	0.06	ug/l	0.5	0.06		3
84	Beryllium	8/1/2003	ND	0.06	ug/l	0.1	0.06		3
85	Beryllium	8/29/2003	ND	0.06	ug/l	0.5	0.06		3
86	Beryllium	9/12/2003	ND	0.06	ug/l	0.5	0.06		3
87	Beryllium	10/10/2003	ND	0.06	ug/l	0.5	0.06		3
88	Beryllium	11/7/2003	ND	0.06	ug/l	0.5	0.06		3
89	Beryllium	12/5/2003	ND	0.06	ug/l	0.5	0.06		3
90	Beryllium	1/16/2004	ND	0.06	ug/l	0.2	0.06		3
91	Beryllium	2/13/2004	ND	0.06	ug/l	0.5	0.06		3
92	Beryllium	3/12/2004	ND	0.06	ug/l	0.2	0.06		3
93	Beryllium	4/23/2004	ND	0.06	ug/l	0.1	0.06		3
94	Beryllium	5/7/2004	ND	0.06	ug/l	0.2	0.06		3
95	Beryllium	6/4/2004	ND	0.06	ug/l	0.2	0.06		3
96	Beryllium	7/16/2004	ND	0.06	ug/l	0.2	0.06		3
97	Cadmium	8/7/2002	ND	0.03	ug/l	1	0.03		4
98	Cadmium	9/13/2002	ND	0.03	ug/l	0.5	0.03		4
99	Cadmium	10/11/2002	ND	0.03	ug/l	1	0.03		4
100	Cadmium	12/11/2002	ND	0.03	ug/l	0.2	0.03		4
101	Cadmium	2/14/2003	ND	0.03	ug/l	0.2	0.03		4
102	Cadmium	3/14/2003	ND	0.03	ug/l	0.2	0.03		4
103	Cadmium	5/9/2003	ND	0.03	ug/l	0.2	0.03		4
104	Cadmium	6/6/2003	ND	0.03	ug/l	0.5	0.03		4
105	Cadmium	7/3/2003	ND	0.03	ug/l	0.5	0.03		4
106	Cadmium	8/1/2003	ND	0.03	ug/l	0.5	0.03		4
107	Cadmium	8/29/2003	ND	0.03	ug/l	0.5	0.03		4
108	Cadmium	9/12/2003	ND	0.03	ug/l	0.5	0.03		4
109	Cadmium	10/10/2003	ND	0.03	ug/l	0.5	0.03		4
110	Cadmium	11/7/2003	ND	0.03	ug/l	0.5	0.03		4
111	Cadmium	12/5/2003	ND	0.03	ug/l	0.5	0.03		4
112	Cadmium	1/16/2004	ND	0.03	ug/l	0.2	0.03		4
113	Cadmium	2/13/2004	ND	0.03	ug/l	0.5	0.03		4
114	Cadmium	5/7/2004	ND	0.03	ug/l	0.5	0.03		4
115	Cadmium	6/4/2004	ND	0.03	ug/l	0.5	0.03		4
116	Cadmium	1/8/2003	J	0.04	ug/l	0.1	0.03		4
117	Cadmium	3/12/2004	J	0.04	ug/l	0.1	0.03		4
118	Cadmium	4/23/2004	J	0.04	ug/l	0.1	0.03		4
119	Cadmium	3/15/2002	J	0.05	ug/l	0.1	0.04		4
120	Cadmium	1/9/2002	J	0.06	ug/l	0.1	0.04		4
121	Cadmium	4/11/2003	J	0.06	ug/l	0.2	0.03		4
122	Cadmium	11/8/2002	J	0.07	ug/l	0.2	0.03		4

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
724	2,4,6-Trichlorophenol	7/16/2004	ND	0.6	ug/l	5	0.6		55
725	2,4,6-Trichlorophenol	1/13/2005	ND	2	ug/l	5	2		55
726	Acnaphthene	1/13/2005	ND	0.031	ug/l	0.31	0.031		56
727	Acnaphthene	1/9/2002	ND	0.17	ug/l	0.3	0.17		56
728	Acnaphthene	7/24/2002	ND	0.17	ug/l	0.3	0.17		56
729	Acnaphthene	1/16/2003	ND	0.17	ug/l	0.3	0.17		56
730	Acnaphthene	8/14/2003	ND	0.17	ug/l	0.3	0.17		56
731	Acnaphthene	8/28/2003	ND	0.17	ug/l	0.3	0.17		56
732	Acnaphthene	1/15/2004	ND	0.17	ug/l	0.3	0.17		56
733	Acnaphthene	7/16/2004	ND	0.17	ug/l	0.3	0.17		56
734	Acenephthylene	1/13/2005	ND	0.02	ug/l	0.2	0.02		57
735	Acenephthylene	1/9/2002	ND	0.03	ug/l	0.2	0.03		57
736	Acenephthylene	7/24/2002	ND	0.03	ug/l	0.2	0.03		57
737	Acenephthylene	1/16/2003	ND	0.03	ug/l	0.2	0.03		57
738	Acenephthylene	8/14/2003	ND	0.03	ug/l	0.2	0.03		57
739	Acenephthylene	8/28/2003	ND	0.03	ug/l	0.2	0.03		57
740	Acenephthylene	1/15/2004	ND	0.03	ug/l	0.2	0.03		57
741	Acenephthylene	7/16/2004	ND	0.03	ug/l	0.2	0.03		57
742	Anthracene	1/13/2005	ND	0.031	ug/l	0.31	0.031		58
743	Anthracene	1/9/2002	ND	0.16	ug/l	0.3	0.16		58
744	Anthracene	7/24/2002	ND	0.16	ug/l	0.3	0.16		58
745	Anthracene	1/16/2003	ND	0.16	ug/l	0.3	0.16		58
746	Anthracene	8/14/2003	ND	0.16	ug/l	0.3	0.16		58
747	Anthracene	8/28/2003	ND	0.16	ug/l	0.3	0.16		58
748	Anthracene	1/15/2004	ND	0.16	ug/l	0.3	0.16		58
749	Anthracene	7/16/2004	ND	0.16	ug/l	0.3	0.16		58
750	Benzidine	1/9/2002	ND	0.3	ug/l	5	0.3		59
751	Benzidine	7/18/2002	ND	1	ug/l	5	1		59
752	Benzidine	1/16/2003	ND	1	ug/l	5	1		59
753	Benzidine	8/14/2003	ND	1	ug/l	5	1		59
754	Benzidine	8/28/2003	ND	1	ug/l	5	1		59
755	Benzidine	1/15/2004	ND	1	ug/l	5	1		59
756	Benzidine	7/16/2004	ND	1	ug/l	5	1		59
757	Benzidine	1/13/2005	ND	1	ug/l	5	1		59
758	Benzo(a)Anthracene	1/13/2005	ND	0.02	ug/l	0.31	0.02		60
759	Benzo(a)Anthracene	1/9/2002	ND	0.12	ug/l	0.3	0.12		60
760	Benzo(a)Anthracene	7/24/2002	ND	0.12	ug/l	0.3	0.12		60
761	Benzo(a)Anthracene	1/16/2003	ND	0.12	ug/l	0.3	0.12		60
762	Benzo(a)Anthracene	8/14/2003	ND	0.12	ug/l	0.3	0.12		60
763	Benzo(a)Anthracene	8/28/2003	ND	0.12	ug/l	0.3	0.12		60
764	Benzo(a)Anthracene	1/15/2004	ND	0.12	ug/l	0.3	0.12		60
765	Benzo(a)Anthracene	7/16/2004	ND	0.12	ug/l	0.3	0.12		60
766	Benzo(a)Pyrene	1/13/2005	ND	0.02	ug/l	0.31	0.02		61
767	Benzo(a)Pyrene	1/9/2002	ND	0.09	ug/l	0.3	0.09		61
768	Benzo(a)Pyrene	7/24/2002	ND	0.09	ug/l	0.3	0.09		61
769	Benzo(a)Pyrene	1/16/2003	ND	0.09	ug/l	0.3	0.09		61
770	Benzo(a)Pyrene	8/14/2003	ND	0.09	ug/l	0.3	0.09		61
771	Benzo(a)Pyrene	8/28/2003	ND	0.09	ug/l	0.3	0.09		61
772	Benzo(a)Pyrene	1/15/2004	ND	0.09	ug/l	0.3	0.09		61
773	Benzo(a)Pyrene	7/16/2004	ND	0.09	ug/l	0.3	0.09		61
774	Benzo(b)Fluoranthene	1/13/2005	ND	0.031	ug/l	0.31	0.031		62
775	Benzo(b)Fluoranthene	1/9/2002	ND	0.11	ug/l	0.3	0.11		62
776	Benzo(b)Fluoranthene	7/24/2002	ND	0.11	ug/l	0.3	0.11		62
777	Benzo(b)Fluoranthene	1/16/2003	ND	0.11	ug/l	0.3	0.11		62
778	Benzo(b)Fluoranthene	8/14/2003	ND	0.11	ug/l	0.3	0.11		62
779	Benzo(b)Fluoranthene	8/28/2003	ND	0.11	ug/l	0.3	0.11		62
780	Benzo(b)Fluoranthene	1/15/2004	ND	0.11	ug/l	0.3	0.11		62
781	Benzo(b)Fluoranthene	7/16/2004	ND	0.11	ug/l	0.3	0.11		62
782	Benzo(ghi)Perylene	1/13/2005	ND	0.031	ug/l	0.1	0.031		63
783	Benzo(ghi)Perylene	1/9/2002	ND	0.06	ug/l	0.1	0.06		63
784	Benzo(ghi)Perylene	7/24/2002	ND	0.06	ug/l	0.1	0.06		63

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
123	Cadmium	5/24/2002	J	0.09	ug/l	0.2	0.04		4
124	Cadmium	4/12/2002	J	0.1	ug/l	0.5	0.04		4
125	Cadmium	7/19/2002	J	0.1	ug/l	0.2	0.03		4
126	Cadmium	6/7/2002	J	0.2	ug/l	0.2	0.03		4
127	Cadmium	2/15/2002		0.1	ug/l	0.1	0.04		4
128	Cadmium	7/16/2004		0.6	ug/l	0.2	0.03		4
129	Chromium	08/07/2002	ND	0.2	ug/L	5	0.2		5
130	Chromium	09/13/2002	ND	0.2	ug/L	2.5	0.2		5
131	Chromium	10/11/2002	ND	0.2	ug/L	5	0.2		5
132	Chromium	12/11/2002	ND	0.2	ug/L	1	0.2		5
133	Chromium	04/11/2003	J	0.96	ug/L	1	0.2		5
134	Chromium	10/10/2003	J	1.1	ug/L	2.5	0.2		5
135	Chromium	06/04/2004	J	1.1	ug/L	2.5	0.2		5
136	Chromium	04/12/2002	J	1.5	ug/L	2.5	0.2		5
137	Chromium	11/07/2003	J	1.5	ug/L	2.5	0.2		5
138	Chromium	02/14/2003		1	ug/L	1	0.2		5
139	Chromium	03/14/2003		1	ug/L	1	0.2		5
140	Chromium	11/08/2002		2	ug/L	1	0.2		5
141	Chromium	02/13/2004		2.6	ug/L	2.5	0.2		5
142	Chromium	02/13/2004		2.6	ug/L	2.5	0.2		5
143	Chromium	07/19/2002		3	ug/L	1	0.2		5
144	Chromium	01/16/2004		3	ug/L	1	0.2		5
145	Chromium	07/16/2004		3	ug/L	1	0.2		5
146	Chromium	06/06/2003		3.8	ug/L	2.5	0.2		5
147	Chromium	12/05/2003		4	ug/L	2.5	0.2		5
148	Chromium	08/29/2003		4.1	ug/L	2.5	0.2		5
149	Chromium	05/24/2002		5	ug/L	1	0.2		5
150	Chromium	06/07/2002		5	ug/L	1	0.2		5
151	Chromium	03/15/2002		6	ug/L	1	0.2		5
152	Chromium	09/12/2003		6	ug/L	2.5	0.2		5
153	Chromium	03/12/2004		6	ug/L	1	0.2		5
154	Chromium	01/08/2003		6.4	ug/L	0.5	0.2		5
155	Chromium	08/01/2003		6.9	ug/L	2.5	0.2		5
156	Chromium	07/03/2003		7.9	ug/L	2.5	0.2		5
157	Chromium	05/09/2003		10	ug/L	1	0.2		5
158	Chromium	01/09/2002		11	ug/L	0.5	0.2		5
159	Chromium	04/23/2004		12	ug/L	0.5	0.2		5
160	Chromium	02/15/2002		30	ug/L	0.5	0.2		5
161	Chromium	05/07/2004		40	ug/L	2.5	0.2		5
162	Copper	5/9/2003		6	ug/l	1	0.3		6
163	Copper	2/15/2002		6.5	ug/l	0.5	0.2		6
164	Copper	6/7/2002		7	ug/l	1	0.3		6
165	Copper	4/23/2004		7	ug/l	0.5	0.3		6
166	Copper	3/12/2004		7.3	ug/l	0.5	0.3		6
167	Copper	8/1/2003		7.5	ug/l	2.5	0.3		6
168	Copper	6/4/2004		7.8	ug/l	2.5	0.3		6
169	Copper	7/3/2003		7.9	ug/l	2.5	0.3		6
170	Copper	4/12/2002		8.3	ug/l	2.5	0.2		6
171	Copper	3/15/2002		8.4	ug/l	0.5	0.2		6
172	Copper	2/13/2004		8.4	ug/l	2.5	0.3		6
173	Copper	1/8/2003		8.6	ug/l	0.5	0.3		6
174	Copper	6/6/2003		8.7	ug/l	2.5	0.3		6
175	Copper	5/24/2002		9	ug/l	1	0.2		6
176	Copper	7/19/2002		9	ug/l	1	0.3		6
177	Copper	1/16/2004		9	ug/l	1	0.3		6
178	Copper	7/16/2004		9	ug/l	1	0.3		6
179	Copper	12/5/2003		9.1	ug/l	2.5	0.3		6
180	Copper	1/9/2002		10	ug/l	0.5	0.2		6
181	Copper	9/13/2002		10	ug/l	2.5	0.3		6
182	Copper	11/8/2002		10	ug/l	1	0.3		6
183	Copper	12/11/2002		10	ug/l	2	0.3		6

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
785	Benzo(ghi)Perylene	1/16/2003	ND	0.06	ug/l	0.1	0.06		63
786	Benzo(ghi)Perylene	8/14/2003	ND	0.06	ug/l	0.1	0.06		63
787	Benzo(ghi)Perylene	8/28/2003	ND	0.06	ug/l	0.1	0.06		63
788	Benzo(ghi)Perylene	1/15/2004	ND	0.06	ug/l	0.1	0.06		63
789	Benzo(ghi)Perylene	7/16/2004	ND	0.06	ug/l	0.1	0.06		63
790	Benzo(k)Fluoranthene	1/13/2005	ND	0.041	ug/l	0.31	0.041		64
791	Benzo(k)Fluoranthene	1/9/2002	ND	0.16	ug/l	0.3	0.16		64
792	Benzo(k)Fluoranthene	7/24/2002	ND	0.16	ug/l	0.3	0.16		64
793	Benzo(k)Fluoranthene	1/16/2003	ND	0.16	ug/l	0.3	0.16		64
794	Benzo(k)Fluoranthene	8/14/2003	ND	0.16	ug/l	0.3	0.16		64
795	Benzo(k)Fluoranthene	8/28/2003	ND	0.16	ug/l	0.3	0.16		64
796	Benzo(k)Fluoranthene	1/15/2004	ND	0.16	ug/l	0.3	0.16		64
797	Benzo(k)Fluoranthene	7/16/2004	ND	0.16	ug/l	0.3	0.16		64
798	Bis(2-Chloroethoxy)Methane	1/9/2002	ND	0.3	ug/l	5	0.3		65
799	Bis(2-Chloroethoxy)Methane	1/13/2005	ND	0.8	ug/l	5	0.8		65
800	Bis(2-Chloroethoxy)Methane	7/18/2002	ND	0.9	ug/l	5	0.9		65
801	Bis(2-Chloroethoxy)Methane	1/16/2003	ND	0.9	ug/l	5	0.9		65
802	Bis(2-Chloroethoxy)Methane	8/14/2003	ND	0.9	ug/l	5	0.9		65
803	Bis(2-Chloroethoxy)Methane	8/28/2003	ND	0.9	ug/l	5	0.9		65
804	Bis(2-Chloroethoxy)Methane	1/15/2004	ND	0.9	ug/l	5	0.9		65
805	Bis(2-Chloroethoxy)Methane	7/16/2004	ND	0.9	ug/l	5	0.9		65
806	Bis(2-Chloroethyl)Ether	1/9/2002	ND	0.3	ug/l	1	0.3		66
807	Bis(2-Chloroethyl)Ether	7/18/2002	ND	0.7	ug/l	1	0.7		66
808	Bis(2-Chloroethyl)Ether	1/16/2003	ND	0.7	ug/l	1	0.7		66
809	Bis(2-Chloroethyl)Ether	8/14/2003	ND	0.7	ug/l	1	0.7		66
810	Bis(2-Chloroethyl)Ether	8/28/2003	ND	0.7	ug/l	1	0.7		66
811	Bis(2-Chloroethyl)Ether	1/15/2004	ND	0.7	ug/l	1	0.7		66
812	Bis(2-Chloroethyl)Ether	7/16/2004	ND	0.7	ug/l	1	0.7		66
813	Bis(2-Chloroethyl)Ether	1/13/2005	ND	0.7	ug/l	1	0.7		66
814	Bis(2-Chloroisopropyl)Ether	7/18/2002	ND	0.6	ug/l	2	0.6		67
815	Bis(2-Chloroisopropyl)Ether	1/16/2003	ND	0.6	ug/l	2	0.6		67
816	Bis(2-Chloroisopropyl)Ether	8/14/2003	ND	0.6	ug/l	2	0.6		67
817	Bis(2-Chloroisopropyl)Ether	8/28/2003	ND	0.6	ug/l	2	0.6		67
818	Bis(2-Chloroisopropyl)Ether	1/15/2004	ND	0.6	ug/l	2	0.6		67
819	Bis(2-Chloroisopropyl)Ether	7/16/2004	ND	0.6	ug/l	2	0.6		67
820	Bis(2-Chloroisopropyl)Ether	1/13/2005	ND	0.7	ug/l	2	0.7		67
821	Bis(2-Chloroisopropyl)Ether	1/9/2002	ND	1	ug/l	2	1		67
822	Bis(2-Ethylhexyl)Phthalate	1/9/2002	ND	0.3	ug/l	5	0.3		68
823	Bis(2-Ethylhexyl)Phthalate	7/18/2002	ND	0.8	ug/l	5	0.8		68
824	Bis(2-Ethylhexyl)Phthalate	1/16/2003	ND	0.8	ug/l	5	0.8		68
825	Bis(2-Ethylhexyl)Phthalate	8/14/2003	ND	0.8	ug/l	5	0.8		68
826	Bis(2-Ethylhexyl)Phthalate	8/28/2003	ND	0.8	ug/l	5	0.8		68
827	Bis(2-Ethylhexyl)Phthalate	7/16/2004	ND	0.8	ug/l	5	0.8		68
828	Bis(2-Ethylhexyl)Phthalate	1/15/2004	J	4	ug/l	5	0.8		68
829	Bis(2-Ethylhexyl)Phthalate	1/13/2005		21	ug/l	3	0.5		68
830	4-Bromophenyl Phenyl Ether	7/18/2002	ND	0.4	ug/l	5	0.4		69
831	4-Bromophenyl Phenyl Ether	1/16/2003	ND	0.4	ug/l	5	0.4		69
832	4-Bromophenyl Phenyl Ether	8/14/2003	ND	0.4	ug/l	5	0.4		69
833	4-Bromophenyl Phenyl Ether	8/28/2003	ND	0.4	ug/l	5	0.4		69
834	4-Bromophenyl Phenyl Ether	1/15/2004	ND	0.4	ug/l	5	0.4		69
835	4-Bromophenyl Phenyl Ether	7/16/2004	ND	0.4	ug/l	5	0.4		69
836	4-Bromophenyl Phenyl Ether	1/9/2002	ND	0.5	ug/l	5	0.5		69
837	4-Bromophenyl Phenyl Ether	1/13/2005	ND	2	ug/l	5	2		69
838	Butylbenzyl Phthalate	1/9/2002	ND	0.4	ug/l	5	0.4		70
839	Butylbenzyl Phthalate	7/18/2002	ND	0.8	ug/l	5	0.8		70
840	Butylbenzyl Phthalate	1/16/2003	ND	0.8	ug/l	5	0.8		70
841	Butylbenzyl Phthalate	8/14/2003	ND	0.8	ug/l	5	0.8		70
842	Butylbenzyl Phthalate	8/28/2003	ND	0.8	ug/l	5	0.8		70
843	Butylbenzyl Phthalate	1/15/2004	ND	0.8	ug/l	5	0.8		70
844	Butylbenzyl Phthalate	7/16/2004	ND	0.8	ug/l	5	0.8		70
845	Butylbenzyl Phthalate	1/13/2005	ND	2	ug/l	5	2		70

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C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
184	Copper	8/7/2002		11	ug/l	5	0.3		6
185	Copper	10/11/2002		11	ug/l	5	0.3		6
186	Copper	4/11/2003		12	ug/l	1	0.3		6
187	Copper	9/12/2003		12	ug/l	2.5	0.3		6
188	Copper	2/14/2003		13	ug/l	1	0.3		6
189	Copper	11/7/2003		13	ug/l	2.5	0.3		6
190	Copper	3/14/2003		16	ug/l	1	0.3		6
191	Copper	5/7/2004		16	ug/l	2.5	0.3		6
192	Copper	8/29/2003		17	ug/l	2.5	0.3		6
193	Copper	10/10/2003		20	ug/l	2.5	0.3		6
194	Lead	10/11/2002	ND	0.04	ug/l	2.5	0.04		7
195	Lead	12/11/2002	ND	0.04	ug/l	0.5	0.04		7
196	Lead	9/12/2003	ND	0.04	ug/l	1.3	0.04		7
197	Lead	2/14/2003	J	0.15	ug/l	0.5	0.04		7
198	Lead	9/13/2002	J	0.25	ug/l	1.3	0.04		7
199	Lead	6/7/2002	J	0.27	ug/l	0.5	0.04		7
200	Lead	7/19/2002	J	0.3	ug/l	1.3	0.04		7
201	Lead	4/11/2003	J	0.32	ug/l	0.5	0.04		7
202	Lead	10/10/2003	J	0.33	ug/l	1.3	0.04		7
203	Lead	6/6/2003	J	0.36	ug/l	0.5	0.04		7
204	Lead	1/16/2004	J	0.46	ug/l	0.5	0.04		7
205	Lead	8/1/2003	J	0.59	ug/l	1.3	0.04		7
206	Lead	2/13/2004	J	0.59	ug/l	1.3	0.04		7
207	Lead	11/7/2003	J	0.62	ug/l	1.3	0.04		7
208	Lead	6/4/2004	J	0.67	ug/l	1.3	0.04		7
209	Lead	8/7/2002	J	0.7	ug/l	2.5	0.04		7
210	Lead	4/12/2002	J	0.71	ug/l	1.3	0.02		7
211	Lead	12/5/2003	J	0.8	ug/l	1.3	0.04		7
212	Lead	7/3/2003	J	1.1	ug/l	1.3	0.04		7
213	Lead	8/29/2003	J	1.1	ug/l	1.3	0.04		7
214	Lead	5/24/2002		0.6	ug/l	0.5	0.02		7
215	Lead	7/16/2004		0.62	ug/l	0.5	0.04		7
216	Lead	2/15/2002		0.67	ug/l	0.25	0.02		7
217	Lead	11/8/2002		0.84	ug/l	0.5	0.04		7
218	Lead	4/23/2004		0.95	ug/l	0.25	0.04		7
219	Lead	5/9/2003		1.1	ug/l	0.5	0.04		7
220	Lead	1/8/2003		1.2	ug/l	0.25	0.04		7
221	Lead	3/12/2004		1.3	ug/l	0.5	0.04		7
222	Lead	3/14/2003		1.4	ug/l	0.5	0.04		7
223	Lead	1/9/2002		1.7	ug/l	0.25	0.02		7
224	Lead	3/15/2002		1.8	ug/l	0.5	0.02		7
225	Lead	5/7/2004		2.6	ug/l	1.3	0.04		7
226	Mercury	11/7/2002		0.0031	ug/l	0.0005	0.0002		8
227	Mercury	10/10/2002		0.0034	ug/l	0.0005	0.0002		8
228	Mercury	8/28/2003		0.0046	ug/l	0.0005	0.0002		8
229	Mercury	11/6/2003		0.005	ug/l	0.0005	0.0002		8
230	Mercury	10/9/2003		0.0063	ug/l	0.0005	0.0002		8
231	Mercury	9/13/2002		0.0068	ug/l	0.0005	0.0002		8
232	Mercury	2/13/2003		0.0068	ug/l	0.0005	0.0002		8
233	Mercury	6/6/2002		0.0069	ug/l	0.0005	0.0002		8
234	Mercury	7/2/2003		0.0071	ug/l	0.0005	0.0002		8
235	Mercury	12/4/2003		0.0073	ug/l	0.0005	0.0002		8
236	Mercury	12/10/2002		0.0077	ug/l	0.0005	0.0002		8
237	Mercury	4/10/2003		0.0077	ug/l	0.0005	0.0002		8
238	Mercury	3/13/2003		0.008	ug/l	0.0005	0.0002		8
239	Mercury	6/6/2003		0.008	ug/l	0.0005	0.0002		8
240	Mercury	5/8/2003		0.01	ug/l	0.0005	0.0002		8
241	Mercury	1/15/2004		0.011	ug/l	0.0005	0.0002		8
242	Mercury	1/7/2003		0.013	ug/l	0.0005	0.0002		8
243	Mercury	7/31/2003		0.013	ug/l	0.0005	0.0002		8
244	Mercury	5/9/2002		0.016	ug/l	0.0005	0.0002		8

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
846	2-Chloronaphthalene	1/9/2002	ND	0.3	ug/l	5	0.3		71
847	2-Chloronaphthalene	7/18/2002	ND	0.5	ug/l	5	0.5		71
848	2-Chloronaphthalene	1/16/2003	ND	0.5	ug/l	5	0.5		71
849	2-Chloronaphthalene	8/14/2003	ND	0.5	ug/l	5	0.5		71
850	2-Chloronaphthalene	8/28/2003	ND	0.5	ug/l	5	0.5		71
851	2-Chloronaphthalene	1/15/2004	ND	0.5	ug/l	5	0.5		71
852	2-Chloronaphthalene	7/16/2004	ND	0.5	ug/l	5	0.5		71
853	2-Chloronaphthalene	1/13/2005	ND	0.6	ug/l	5	0.6		71
854	4-Chlorophenyl Phenyl Ether	1/9/2002	ND	0.4	ug/l	5	0.4		72
855	4-Chlorophenyl Phenyl Ether	7/18/2002	ND	0.5	ug/l	5	0.5		72
856	4-Chlorophenyl Phenyl Ether	1/16/2003	ND	0.5	ug/l	5	0.5		72
857	4-Chlorophenyl Phenyl Ether	8/14/2003	ND	0.5	ug/l	5	0.5		72
858	4-Chlorophenyl Phenyl Ether	8/28/2003	ND	0.5	ug/l	5	0.5		72
859	4-Chlorophenyl Phenyl Ether	1/15/2004	ND	0.5	ug/l	5	0.5		72
860	4-Chlorophenyl Phenyl Ether	7/16/2004	ND	0.5	ug/l	5	0.5		72
861	4-Chlorophenyl Phenyl Ether	1/13/2005	ND	2	ug/l	5	2		72
862	Chrysene	1/13/2005	ND	0.041	ug/l	0.31	0.041		73
863	Chrysene	1/9/2002	ND	0.14	ug/l	0.3	0.14		73
864	Chrysene	7/24/2002	ND	0.14	ug/l	0.3	0.14		73
865	Chrysene	1/16/2003	ND	0.14	ug/l	0.3	0.14		73
866	Chrysene	8/14/2003	ND	0.14	ug/l	0.3	0.14		73
867	Chrysene	8/28/2003	ND	0.14	ug/l	0.3	0.14		73
868	Chrysene	1/15/2004	ND	0.14	ug/l	0.3	0.14		73
869	Chrysene	7/16/2004	ND	0.14	ug/l	0.3	0.14		73
870	Dibenzo(a,h)Anthracene	1/13/2005	ND	0.031	ug/l	0.1	0.031		74
871	Dibenzo(a,h)Anthracene	1/9/2002	ND	0.04	ug/l	0.1	0.04		74
872	Dibenzo(a,h)Anthracene	7/24/2002	ND	0.04	ug/l	0.1	0.04		74
873	Dibenzo(a,h)Anthracene	1/16/2003	ND	0.04	ug/l	0.1	0.04		74
874	Dibenzo(a,h)Anthracene	8/14/2003	ND	0.04	ug/l	0.1	0.04		74
875	Dibenzo(a,h)Anthracene	8/28/2003	ND	0.04	ug/l	0.1	0.04		74
876	Dibenzo(a,h)Anthracene	1/15/2004	ND	0.04	ug/l	0.1	0.04		74
877	Dibenzo(a,h)Anthracene	7/16/2004	ND	0.04	ug/l	0.1	0.04		74
878	1,2-Dichlorobenzene	1/9/2002	ND	0.12	ug/l	0.5	0.12		75
879	1,2-Dichlorobenzene	8/6/2002	ND	0.2	ug/l	0.5	0.2		75
880	1,2-Dichlorobenzene	1/15/2004	ND	0.2	ug/l	0.5	0.2		75
881	1,2-Dichlorobenzene	1/13/2005	ND	0.4	ug/l	2	0.4		75
882	1,2-Dichlorobenzene	7/18/2002	ND	0.6	ug/l	2	0.6		75
883	1,2-Dichlorobenzene	1/16/2003	ND	0.6	ug/l	2	0.6		75
884	1,2-Dichlorobenzene	8/14/2003	ND	0.6	ug/l	2	0.6		75
885	1,2-Dichlorobenzene	8/28/2003	ND	0.6	ug/l	2	0.6		75
886	1,2-Dichlorobenzene	7/16/2004	ND	0.6	ug/l	2	0.6		75
887	1,3-Dichlorobenzene	1/9/2002	ND	0.16	ug/l	0.5	0.16		76
888	1,3-Dichlorobenzene	8/6/2002	ND	0.3	ug/l	0.5	0.3		76
889	1,3-Dichlorobenzene	1/15/2004	ND	0.3	ug/l	0.5	0.3		76
890	1,3-Dichlorobenzene	7/16/2004	ND	0.3	ug/l	0.5	0.3		76
891	1,3-Dichlorobenzene	7/18/2002	ND	0.6	ug/l	1	0.6		76
892	1,3-Dichlorobenzene	1/16/2003	ND	0.6	ug/l	1	0.6		76
893	1,3-Dichlorobenzene	8/14/2003	ND	0.6	ug/l	1	0.6		76
894	1,3-Dichlorobenzene	8/28/2003	ND	0.6	ug/l	1	0.6		76
895	1,3-Dichlorobenzene	1/13/2005	ND	0.99	ug/l	1	0.99		76
896	1,4-Dichlorobenzene	1/9/2002	ND	0.12	ug/l	0.5	0.12		77
897	1,4-Dichlorobenzene	8/6/2002	ND	0.3	ug/l	0.5	0.3		77
898	1,4-Dichlorobenzene	1/16/2003	ND	0.3	ug/l	0.5	0.3		77
899	1,4-Dichlorobenzene	8/28/2003	ND	0.3	ug/l	0.5	0.3		77
900	1,4-Dichlorobenzene	1/15/2004	ND	0.3	ug/l	0.5	0.3		77
901	1,4-Dichlorobenzene	7/16/2004	ND	0.3	ug/l	0.5	0.3		77
902	1,4-Dichlorobenzene	7/18/2002	ND	0.6	ug/l	1	0.6		77
903	1,4-Dichlorobenzene	8/14/2003	ND	0.6	ug/l	1	0.6		77
904	1,4-Dichlorobenzene	1/13/2005	ND	0.96	ug/l	1	0.96		77
905	3,3'-Dichlorobenzidine	7/18/2002	ND	0.3	ug/l	5	0.3		78
906	3,3'-Dichlorobenzidine	1/16/2003	ND	0.3	ug/l	5	0.3		78

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C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
245	Mercury	9/11/2003		0.017	ug/l	0.0005	0.0002		8
246	Mercury	1/9/2002		0.018	ug/l	0.0005	0.0002		8
247	Mercury	4/11/2002		0.019	ug/l	0.0005	0.0002		8
248	Mercury	2/12/2004		0.02	ug/l	0.0005	0.0002		8
249	Mercury	8/6/2002		0.021	ug/l	0.0005	0.0002		8
250	Mercury	4/22/2004		0.022	ug/l	0.0005	0.0002		8
251	Mercury	7/16/2004		0.026	ug/l	0.0005	0.0002		8
252	Mercury	7/18/2002		0.03	ug/l	0.0005	0.0002		8
253	Mercury	2/15/2002		0.032	ug/l	0.0005	0.0002		8
254	Mercury	3/11/2004		0.045	ug/l	0.0005	0.0002		8
255	Mercury	3/14/2002		0.046	ug/l	0.0005	0.0002		8
256	Mercury	6/4/2004		0.061	ug/l	0.0005	0.0002		8
257	Mercury	5/7/2004		0.082	ug/l	0.0005	0.0002		8
258	Nickel	1/16/2004		10	ug/l	1	0.2		9
259	Nickel	2/13/2004		10	ug/l	2.5	0.2		9
260	Nickel	7/16/2004		10	ug/l	1	0.2		9
261	Nickel	3/12/2004		11	ug/l	1	0.2		9
262	Nickel	6/4/2004		11	ug/l	2.5	0.2		9
263	Nickel	12/11/2002		13	ug/l	1	0.2		9
264	Nickel	9/13/2002		14	ug/l	2.5	0.2		9
265	Nickel	4/12/2002		15	ug/l	2.5	0.2		9
266	Nickel	7/19/2002		15	ug/l	1	0.2		9
267	Nickel	8/7/2002		15	ug/l	5	0.2		9
268	Nickel	1/8/2003		16	ug/l	0.5	0.2		9
269	Nickel	10/11/2002		17	ug/l	5	0.2		9
270	Nickel	12/5/2003		18	ug/l	2.5	0.2		9
271	Nickel	5/24/2002		19	ug/l	1	0.2		9
272	Nickel	11/7/2003		19	ug/l	2.5	0.2		9
273	Nickel	4/23/2004		19	ug/l	0.5	0.2		9
274	Nickel	4/11/2003		20	ug/l	1	0.2		9
275	Nickel	5/9/2003		24	ug/l	1	0.2		9
276	Nickel	6/7/2002		26	ug/l	1	0.2		9
277	Nickel	11/8/2002		27	ug/l	1	0.2		9
278	Nickel	2/14/2003		28	ug/l	1	0.2		9
279	Nickel	5/7/2004		28	ug/l	2.5	0.2		9
280	Nickel	3/15/2002		29	ug/l	0.5	0.2		9
281	Nickel	10/10/2003		31	ug/l	2.5	0.2		9
282	Nickel	8/29/2003		32	ug/l	2.5	0.2		9
283	Nickel	9/12/2003		33	ug/l	2.5	0.2		9
284	Nickel	3/14/2003		38	ug/l	2.5	0.2		9
285	Nickel	7/3/2003		47	ug/l	2.5	0.2		9
286	Nickel	8/1/2003		51	ug/l	2.5	0.2		9
287	Nickel	1/9/2002		56	ug/l	0.5	0.2		9
288	Nickel	6/6/2003		61	ug/l	2.5	0.2		9
289	Nickel	2/15/2002		160	ug/l	1	0.2		9
290	Selenium	8/1/2003	ND	0.5	ug/l	5	0.5		10
291	Selenium	9/12/2003	ND	0.5	ug/l	5	0.5		10
292	Selenium	12/5/2003	ND	0.5	ug/l	5	0.5		10
293	Selenium	1/16/2004	ND	0.5	ug/l	5	0.5		10
294	Selenium	3/12/2004	J	0.6	ug/l	1	0.5		10
295	Selenium	1/8/2003		2	ug/l	1	0.5		10
296	Selenium	11/7/2003		2.7	ug/l	2.5	0.5		10
297	Selenium	5/9/2003		3	ug/l	1	0.5		10
298	Selenium	4/23/2004		4	ug/l	1	0.5		10
299	Selenium	3/15/2002		5	ug/l	2	0.5		10
300	Selenium	2/15/2002		6	ug/l	1	0.3		10
301	Selenium	5/24/2002		6	ug/l	3	0.5		10
302	Selenium	3/14/2003		7	ug/l	2	0.5		10
303	Selenium	7/3/2003		7	ug/l	2	0.5		10
304	Selenium	8/29/2003		7	ug/l	5	0.5		10
305	Selenium	2/13/2004		7	ug/l	5	0.5		10

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
907	3,3'-Dichlorobenzidine	8/14/2003	ND	0.3	ug/l	5	0.3		78
908	3,3'-Dichlorobenzidine	8/28/2003	ND	0.3	ug/l	5	0.3		78
909	3,3'-Dichlorobenzidine	1/15/2004	ND	0.3	ug/l	5	0.3		78
910	3,3'-Dichlorobenzidine	7/16/2004	ND	0.3	ug/l	5	0.3		78
911	3,3'-Dichlorobenzidine	1/9/2002	ND	0.4	ug/l	5	0.4		78
912	3,3'-Dichlorobenzidine	1/13/2005	ND	0.6	ug/l	5	0.6		78
913	Diethyl Phthalate	1/9/2002	ND	0.4	ug/l	2	0.4		79
914	Diethyl Phthalate	7/18/2002	ND	0.7	ug/l	2	0.7		79
915	Diethyl Phthalate	1/16/2003	ND	0.7	ug/l	2	0.7		79
916	Diethyl Phthalate	8/14/2003	ND	0.7	ug/l	2	0.7		79
917	Diethyl Phthalate	8/28/2003	ND	0.7	ug/l	2	0.7		79
918	Diethyl Phthalate	1/15/2004	ND	0.7	ug/l	2	0.7		79
919	Diethyl Phthalate	7/16/2004	ND	0.7	ug/l	2	0.7		79
920	Diethyl Phthalate	1/13/2005	ND	0.9	ug/l	2	0.9		79
921	Dimethyl Phthalate	1/9/2002	ND	0.4	ug/l	2	0.4		80
922	Dimethyl Phthalate	1/13/2005	ND	0.6	ug/l	2	0.6		80
923	Dimethyl Phthalate	7/18/2002	ND	0.7	ug/l	2	0.7		80
924	Dimethyl Phthalate	1/16/2003	ND	0.7	ug/l	2	0.7		80
925	Dimethyl Phthalate	8/14/2003	ND	0.7	ug/l	2	0.7		80
926	Dimethyl Phthalate	8/28/2003	ND	0.7	ug/l	2	0.7		80
927	Dimethyl Phthalate	1/15/2004	ND	0.7	ug/l	2	0.7		80
928	Dimethyl Phthalate	7/16/2004	ND	0.7	ug/l	2	0.7		80
929	Di-n-Butyl Phthalate	1/9/2002	ND	0.4	ug/l	5	0.4		81
930	Di-n-Butyl Phthalate	1/13/2005	ND	0.6	ug/l	5	0.6		81
931	Di-n-Butyl Phthalate	7/18/2002	ND	1	ug/l	5	1		81
932	Di-n-Butyl Phthalate	1/16/2003	ND	1	ug/l	5	1		81
933	Di-n-Butyl Phthalate	8/14/2003	ND	1	ug/l	5	1		81
934	Di-n-Butyl Phthalate	8/28/2003	ND	1	ug/l	5	1		81
935	Di-n-Butyl Phthalate	1/15/2004	ND	1	ug/l	5	1		81
936	Di-n-Butyl Phthalate	7/16/2004	ND	1	ug/l	5	1		81
937	2,4-Dinitrotoluene	1/9/2002	ND	0.3	ug/l	5	0.3		82
938	2,4-Dinitrotoluene	7/18/2002	ND	0.6	ug/l	5	0.6		82
939	2,4-Dinitrotoluene	1/16/2003	ND	0.6	ug/l	5	0.6		82
940	2,4-Dinitrotoluene	8/14/2003	ND	0.6	ug/l	5	0.6		82
941	2,4-Dinitrotoluene	8/28/2003	ND	0.6	ug/l	5	0.6		82
942	2,4-Dinitrotoluene	1/15/2004	ND	0.6	ug/l	5	0.6		82
943	2,4-Dinitrotoluene	7/16/2004	ND	0.6	ug/l	5	0.6		82
944	2,4-Dinitrotoluene	1/13/2005	ND	0.9	ug/l	5	0.9		82
945	2,6-Dinitrotoluene	1/9/2002	ND	0.3	ug/l	5	0.3		83
946	2,6-Dinitrotoluene	1/13/2005	ND	0.5	ug/l	5	0.5		83
947	2,6-Dinitrotoluene	7/18/2002	ND	0.6	ug/l	5	0.6		83
948	2,6-Dinitrotoluene	1/16/2003	ND	0.6	ug/l	5	0.6		83
949	2,6-Dinitrotoluene	8/14/2003	ND	0.6	ug/l	5	0.6		83
950	2,6-Dinitrotoluene	8/28/2003	ND	0.6	ug/l	5	0.6		83
951	2,6-Dinitrotoluene	1/15/2004	ND	0.6	ug/l	5	0.6		83
952	2,6-Dinitrotoluene	7/16/2004	ND	0.6	ug/l	5	0.6		83
953	Di-n-Octyl Phthalate	1/9/2002	ND	0.4	ug/l	5	0.4		84
954	Di-n-Octyl Phthalate	1/13/2005	ND	0.7	ug/l	5	0.7		84
955	Di-n-Octyl Phthalate	7/18/2002	ND	0.9	ug/l	5	0.9		84
956	Di-n-Octyl Phthalate	1/16/2003	ND	0.9	ug/l	5	0.9		84
957	Di-n-Octyl Phthalate	8/14/2003	ND	0.9	ug/l	5	0.9		84
958	Di-n-Octyl Phthalate	8/28/2003	ND	0.9	ug/l	5	0.9		84
959	Di-n-Octyl Phthalate	1/15/2004	ND	0.9	ug/l	5	0.9		84
960	Di-n-Octyl Phthalate	7/16/2004	ND	0.9	ug/l	5	0.9		84
961	1,2-Diphenylhydrazine	1/9/2002	ND	0.3	ug/l	1	0.3		85
962	1,2-Diphenylhydrazine	7/18/2002	ND	0.6	ug/l	1	0.6		85
963	1,2-Diphenylhydrazine	1/16/2003	ND	0.6	ug/l	1	0.6		85
964	1,2-Diphenylhydrazine	8/14/2003	ND	0.6	ug/l	1	0.6		85
965	1,2-Diphenylhydrazine	8/28/2003	ND	0.6	ug/l	1	0.6		85
966	1,2-Diphenylhydrazine	1/15/2004	ND	0.6	ug/l	1	0.6		85
967	1,2-Diphenylhydrazine	7/16/2004	ND	0.6	ug/l	1	0.6		85

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C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
306	Selenium	6/7/2002		9	ug/l	2	0.5		10
307	Selenium	7/19/2002		9	ug/l	3	0.5		10
308	Selenium	2/14/2003		9	ug/l	5	0.5		10
309	Selenium	5/7/2004		9	ug/l	3	0.5		10
310	Selenium	8/7/2002		10	ug/l	5	0.5		10
311	Selenium	6/4/2004		10	ug/l	5	0.5		10
312	Selenium	4/12/2002		12	ug/l	5	0.5		10
313	Selenium	9/13/2002		12	ug/l	3	0.5		10
314	Selenium	11/8/2002		12	ug/l	3	0.5		10
315	Selenium	10/10/2003		12	ug/l	5	0.5		10
316	Selenium	10/11/2002		13	ug/l	3	0.5		10
317	Selenium	12/11/2002		13	ug/l	2.5	0.5		10
318	Selenium	6/6/2003		16	ug/l	3	0.5		10
319	Selenium	7/16/2004		17	ug/l	4	0.5		10
320	Selenium	1/9/2002		21	ug/l	1	0.3		10
321	Selenium	4/11/2003		26	ug/l	1	0.5		10
322	Silver	2/15/2002	ND	0.02	ug/l	0.1	0.02		11
323	Silver	3/15/2002	ND	0.02	ug/l	0.1	0.02		11
324	Silver	4/12/2002	ND	0.02	ug/l	0.5	0.02		11
325	Silver	5/24/2002	ND	0.02	ug/l	0.2	0.02		11
326	Silver	6/7/2002	ND	0.02	ug/l	0.2	0.02		11
327	Silver	7/19/2002	ND	0.02	ug/l	0.2	0.02		11
328	Silver	8/7/2002	ND	0.02	ug/l	1	0.02		11
329	Silver	9/13/2002	ND	0.02	ug/l	0.5	0.02		11
330	Silver	10/11/2002	ND	0.02	ug/l	1	0.02		11
331	Silver	11/8/2002	ND	0.02	ug/l	0.2	0.02		11
332	Silver	12/11/2002	ND	0.02	ug/l	0.2	0.02		11
333	Silver	2/14/2003	ND	0.02	ug/l	0.2	0.02		11
334	Silver	3/14/2003	ND	0.02	ug/l	0.2	0.02		11
335	Silver	4/11/2003	ND	0.02	ug/l	0.2	0.02		11
336	Silver	5/9/2003	ND	0.02	ug/l	0.2	0.02		11
337	Silver	6/6/2003	ND	0.02	ug/l	0.5	0.02		11
338	Silver	7/3/2003	ND	0.02	ug/l	0.5	0.02		11
339	Silver	8/1/2003	ND	0.02	ug/l	0.5	0.02		11
340	Silver	8/29/2003	ND	0.02	ug/l	0.5	0.02		11
341	Silver	9/12/2003	ND	0.02	ug/l	0.5	0.02		11
342	Silver	10/10/2003	ND	0.02	ug/l	0.5	0.02		11
343	Silver	11/7/2003	ND	0.02	ug/l	0.5	0.02		11
344	Silver	12/5/2003	ND	0.02	ug/l	0.5	0.02		11
345	Silver	1/16/2004	ND	0.02	ug/l	0.2	0.02		11
346	Silver	2/13/2004	ND	0.02	ug/l	0.5	0.02		11
347	Silver	3/12/2004	ND	0.02	ug/l	0.1	0.02		11
348	Silver	4/23/2004	ND	0.02	ug/l	0.1	0.02		11
349	Silver	5/7/2004	ND	0.02	ug/l	0.5	0.02		11
350	Silver	6/4/2004	ND	0.02	ug/l	0.5	0.02		11
351	Silver	7/16/2004	ND	0.02	ug/l	0.2	0.02		11
352	Silver	1/8/2003	J	0.02	ug/l	0.1	0.02		11
353	Silver	1/9/2002	J	0.03	ug/l	0.1	0.02		11
354	Thallium	04/12/2002	ND	0.03	ug/L	0.5	0.03		12
355	Thallium	05/24/2002	ND	0.03	ug/L	0.2	0.03		12
356	Thallium	06/07/2002	ND	0.03	ug/L	0.2	0.03		12
357	Thallium	07/19/2002	ND	0.03	ug/L	0.5	0.03		12
358	Thallium	08/07/2002	ND	0.03	ug/L	1	0.03		12
359	Thallium	09/13/2002	ND	0.03	ug/L	0.5	0.03		12
360	Thallium	10/11/2002	ND	0.03	ug/L	1	0.03		12
361	Thallium	11/08/2002	ND	0.03	ug/L	0.2	0.03		12
362	Thallium	12/11/2002	ND	0.03	ug/L	0.2	0.03		12
363	Thallium	01/08/2003	ND	0.03	ug/L	0.1	0.03		12
364	Thallium	02/14/2003	ND	0.03	ug/L	0.2	0.03		12
365	Thallium	03/14/2003	ND	0.03	ug/L	0.2	0.03		12
366	Thallium	04/11/2003	ND	0.03	ug/L	0.2	0.03		12

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
968	1,2-Diphenylhydrazine	1/13/2005	ND	0.9	ug/l	1	0.9		85
969	Fluoranthene	1/9/2002	ND	0.03	ug/l	0.05	0.03		86
970	Fluoranthene	7/24/2002	ND	0.03	ug/l	0.05	0.03		86
971	Fluoranthene	1/16/2003	ND	0.03	ug/l	0.05	0.03		86
972	Fluoranthene	8/14/2003	ND	0.03	ug/l	0.05	0.03		86
973	Fluoranthene	8/28/2003	ND	0.03	ug/l	0.05	0.03		86
974	Fluoranthene	1/15/2004	ND	0.03	ug/l	0.05	0.03		86
975	Fluoranthene	7/16/2004	ND	0.03	ug/l	0.05	0.03		86
976	Fluoranthene	1/13/2005	ND	0.031	ug/l	0.05	0.031		86
977	Fluorene	1/9/2002	ND	0.02	ug/l	0.1	0.02		87
978	Fluorene	7/24/2002	ND	0.02	ug/l	0.1	0.02		87
979	Fluorene	1/16/2003	ND	0.02	ug/l	0.1	0.02		87
980	Fluorene	8/14/2003	ND	0.02	ug/l	0.1	0.02		87
981	Fluorene	8/28/2003	ND	0.02	ug/l	0.1	0.02		87
982	Fluorene	1/15/2004	ND	0.02	ug/l	0.1	0.02		87
983	Fluorene	7/16/2004	ND	0.02	ug/l	0.1	0.02		87
984	Fluorene	1/13/2005	ND	0.031	ug/l	0.1	0.031		87
985	Hexachlorobenzene	1/9/2002	ND	0.4	ug/l	1	0.4		88
986	Hexachlorobenzene	7/18/2002	ND	0.4	ug/l	1	0.4		88
987	Hexachlorobenzene	1/16/2003	ND	0.4	ug/l	1	0.4		88
988	Hexachlorobenzene	8/14/2003	ND	0.4	ug/l	1	0.4		88
989	Hexachlorobenzene	8/28/2003	ND	0.4	ug/l	1	0.4		88
990	Hexachlorobenzene	1/15/2004	ND	0.4	ug/l	1	0.4		88
991	Hexachlorobenzene	7/16/2004	ND	0.4	ug/l	1	0.4		88
992	Hexachlorobenzene	1/13/2005	ND	0.8	ug/l	1	0.8		88
993	Hexachlorobutadiene	1/9/2002	ND	0.2	ug/l	1	0.2		89
994	Hexachlorobutadiene	7/18/2002	ND	0.7	ug/l	1	0.7		89
995	Hexachlorobutadiene	1/16/2003	ND	0.7	ug/l	1	0.7		89
996	Hexachlorobutadiene	8/14/2003	ND	0.7	ug/l	1	0.7		89
997	Hexachlorobutadiene	8/28/2003	ND	0.7	ug/l	1	0.7		89
998	Hexachlorobutadiene	1/15/2004	ND	0.7	ug/l	1	0.7		89
999	Hexachlorobutadiene	7/16/2004	ND	0.7	ug/l	1	0.7		89
1000	Hexachlorobutadiene	1/13/2005	ND	0.8	ug/l	1	0.8		89
1001	Hexachlorocyclopentadiene	1/9/2002	ND	0.1	ug/l	5	0.1		90
1002	Hexachlorocyclopentadiene	7/18/2002	ND	0.4	ug/l	5	0.4		90
1003	Hexachlorocyclopentadiene	1/16/2003	ND	0.4	ug/l	5	0.4		90
1004	Hexachlorocyclopentadiene	8/14/2003	ND	0.4	ug/l	5	0.4		90
1005	Hexachlorocyclopentadiene	8/28/2003	ND	0.4	ug/l	5	0.4		90
1006	Hexachlorocyclopentadiene	1/15/2004	ND	0.4	ug/l	5	0.4		90
1007	Hexachlorocyclopentadiene	7/16/2004	ND	0.4	ug/l	5	0.4		90
1008	Hexachlorocyclopentadiene	1/13/2005	ND	0.8	ug/l	1	0.8		90
1009	Hexachloroethane	1/9/2002	ND	0.2	ug/l	1	0.2		91
1010	Hexachloroethane	7/18/2002	ND	0.6	ug/l	1	0.6		91
1011	Hexachloroethane	1/16/2003	ND	0.6	ug/l	1	0.6		91
1012	Hexachloroethane	8/14/2003	ND	0.6	ug/l	1	0.6		91
1013	Hexachloroethane	8/28/2003	ND	0.6	ug/l	1	0.6		91
1014	Hexachloroethane	1/15/2004	ND	0.6	ug/l	1	0.6		91
1015	Hexachloroethane	7/16/2004	ND	0.6	ug/l	1	0.6		91
1016	Hexachloroethane	1/13/2005	ND	0.9	ug/l	1	0.9		91
1017	Indeno(1,2,3-cd) Pyrene	1/13/2005	ND	0.031	ug/l	0.05	0.031		92
1018	Indeno(1,2,3-cd) Pyrene	1/9/2002	ND	0.04	ug/l	0.05	0.04		92
1019	Indeno(1,2,3-cd) Pyrene	7/24/2002	ND	0.04	ug/l	0.05	0.04		92
1020	Indeno(1,2,3-cd) Pyrene	1/16/2003	ND	0.04	ug/l	0.05	0.04		92
1021	Indeno(1,2,3-cd) Pyrene	8/14/2003	ND	0.04	ug/l	0.05	0.04		92
1022	Indeno(1,2,3-cd) Pyrene	8/28/2003	ND	0.04	ug/l	0.05	0.04		92
1023	Indeno(1,2,3-cd) Pyrene	1/15/2004	ND	0.04	ug/l	0.05	0.04		92
1024	Indeno(1,2,3-cd) Pyrene	7/16/2004	ND	0.04	ug/l	0.05	0.04		92
1025	Isophorone	1/9/2002	ND	0.3	ug/l	1	0.3		93
1026	Isophorone	1/13/2005	ND	0.5	ug/l	1	0.5		93
1027	Isophorone	7/18/2002	ND	0.8	ug/l	1	0.8		93
1028	Isophorone	1/16/2003	ND	0.8	ug/l	1	0.8		93

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
367	Thallium	05/09/2003	ND	0.03	ug/L	0.2	0.03		12
368	Thallium	07/03/2003	ND	0.03	ug/L	0.5	0.03		12
369	Thallium	08/01/2003	ND	0.03	ug/L	0.5	0.03		12
370	Thallium	08/29/2003	ND	0.03	ug/L	0.5	0.03		12
371	Thallium	09/12/2003	ND	0.03	ug/L	0.5	0.03		12
372	Thallium	10/10/2003	ND	0.03	ug/L	0.5	0.03		12
373	Thallium	11/07/2003	ND	0.03	ug/L	0.5	0.03		12
374	Thallium	12/05/2003	ND	0.03	ug/L	0.5	0.03		12
375	Thallium	01/16/2004	ND	0.03	ug/L	0.2	0.03		12
376	Thallium	02/13/2004	ND	0.03	ug/L	0.5	0.03		12
377	Thallium	02/13/2004	ND	0.03	ug/L	0.5	0.03		12
378	Thallium	03/12/2004	ND	0.03	ug/L	0.1	0.03		12
379	Thallium	04/23/2004	ND	0.03	ug/L	0.1	0.03		12
380	Thallium	05/07/2004	ND	0.03	ug/L	0.5	0.03		12
381	Thallium	01/09/2002	J	0.04	ug/L	0.1	0.03		12
382	Thallium	02/15/2002	J	0.07	ug/L	0.1	0.03		12
383	Thallium	03/15/2002	J	0.1	ug/L	0.2	0.03		12
384	Thallium	06/06/2003	J	0.18	ug/L	0.2	0.03		12
385	Zinc	6/4/2004	J	4	ug/l	5	0.3		13
386	Zinc	2/13/2004	J	9	ug/l	10	0.3		13
387	Zinc	1/16/2004		9	ug/l	4	0.3		13
388	Zinc	7/16/2004		9	ug/l	2	0.3		13
389	Zinc	3/12/2004		11	ug/l	2	0.3		13
390	Zinc	4/23/2004		13	ug/l	2	0.3		13
391	Zinc	11/7/2003		17	ug/l	5	0.3		13
392	Zinc	12/5/2003		20	ug/l	10	0.3		13
393	Zinc	10/10/2003		21	ug/l	5	0.3		13
394	Zinc	4/11/2003		26	ug/l	2	0.3		13
395	Zinc	5/9/2003		29	ug/l	4	0.3		13
396	Zinc	9/12/2003		37	ug/l	5	0.3		13
397	Zinc	8/7/2002		40	ug/l	20	0.3		13
398	Zinc	8/29/2003		42	ug/l	5	0.3		13
399	Zinc	9/13/2002		46	ug/l	5	0.3		13
400	Zinc	6/6/2003		50	ug/l	10	0.3		13
401	Zinc	5/7/2004		51	ug/l	5	0.3		13
402	Zinc	8/1/2003		60	ug/l	10	0.3		13
403	Zinc	7/19/2002		67	ug/l	2	0.3		13
404	Zinc	10/11/2002		80	ug/l	20	0.3		13
405	Zinc	3/14/2003		95	ug/l	4	0.3		13
406	Zinc	1/9/2002		110	ug/l	1	0.5		13
407	Zinc	5/24/2002		120	ug/l	4	0.5		13
408	Zinc	2/14/2003		120	ug/l	2	0.3		13
409	Zinc	3/15/2002		140	ug/l	1	0.5		13
410	Zinc	11/8/2002		140	ug/l	4	0.3		13
411	Zinc	6/7/2002		150	ug/l	2	0.3		13
412	Zinc	7/3/2003		180	ug/l	10	0.3		13
413	Zinc	2/15/2002		190	ug/l	2	0.5		13
414	Zinc	12/11/2002		190	ug/l	4	0.3		13
415	Zinc	1/8/2003		190	ug/l	2	0.3		13
416	Zinc	4/12/2002		220	ug/l	10	0.5		13
417	Cyanide	2/15/2002	ND	0.6	ug/l	3	0.6		14
418	Cyanide	3/14/2002	ND	0.6	ug/l	3	0.6		14
419	Cyanide	4/11/2002	ND	0.6	ug/l	3	0.6		14
420	Cyanide	5/9/2002	ND	0.6	ug/l	3	0.6		14
421	Cyanide	6/6/2002	ND	0.8	ug/l	3	0.8		14
422	Cyanide	9/13/2002	ND	0.9	ug/l	3	0.9		14
423	Cyanide	10/10/2002	ND	0.9	ug/l	3	0.9		14
424	Cyanide	11/7/2002	ND	0.9	ug/l	3	0.9		14
425	Cyanide	12/10/2002	ND	0.9	ug/l	3	0.9		14
426	Cyanide	2/13/2003	ND	0.9	ug/l	3	0.9		14
427	Cyanide	3/13/2003	ND	0.9	ug/l	3	0.9		14

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
1029	Isophorone	8/14/2003	ND	0.8	ug/l	1	0.8		93
1030	Isophorone	8/28/2003	ND	0.8	ug/l	1	0.8		93
1031	Isophorone	1/15/2004	ND	0.8	ug/l	1	0.8		93
1032	Isophorone	7/16/2004	ND	0.8	ug/l	1	0.8		93
1033	Naphthalene	1/13/2005	ND	0.02	ug/l	0.2	0.02		94
1034	Naphthalene	1/9/2002	ND	0.05	ug/l	0.2	0.05		94
1035	Naphthalene	1/16/2003	ND	0.05	ug/l	0.2	0.05		94
1036	Naphthalene	8/14/2003	ND	0.05	ug/l	0.2	0.05		94
1037	Naphthalene	8/28/2003	ND	0.05	ug/l	0.2	0.05		94
1038	Naphthalene	1/15/2004	ND	0.05	ug/l	0.2	0.05		94
1039	Naphthalene	7/16/2004	ND	0.05	ug/l	0.2	0.05		94
1040	Naphthalene	7/24/2002	ND	0.16	ug/l	0.2	0.16		94
1041	Nitrobenzene	1/9/2002	ND	0.3	ug/l	1	0.3		95
1042	Nitrobenzene	7/18/2002	ND	0.7	ug/l	1	0.7		95
1043	Nitrobenzene	1/16/2003	ND	0.7	ug/l	1	0.7		95
1044	Nitrobenzene	8/14/2003	ND	0.7	ug/l	1	0.7		95
1045	Nitrobenzene	8/28/2003	ND	0.7	ug/l	1	0.7		95
1046	Nitrobenzene	1/15/2004	ND	0.7	ug/l	1	0.7		95
1047	Nitrobenzene	7/16/2004	ND	0.7	ug/l	1	0.7		95
1048	Nitrobenzene	1/13/2005	ND	0.7	ug/l	1	0.7		95
1049	N-Nitrosodimethylamine	1/9/2002	ND	0.4	ug/l	5	0.4		96
1050	N-Nitrosodimethylamine	7/18/2002	ND	0.6	ug/l	5	0.6		96
1051	N-Nitrosodimethylamine	1/16/2003	ND	0.6	ug/l	5	0.6		96
1052	N-Nitrosodimethylamine	8/14/2003	ND	0.6	ug/l	5	0.6		96
1053	N-Nitrosodimethylamine	8/28/2003	ND	0.6	ug/l	5	0.6		96
1054	N-Nitrosodimethylamine	1/15/2004	ND	0.6	ug/l	5	0.6		96
1055	N-Nitrosodimethylamine	7/16/2004	ND	0.6	ug/l	5	0.6		96
1056	N-Nitrosodimethylamine	1/13/2005	ND	0.6	ug/l	5	0.6		96
1057	N-Nitrosodi-n-Propylamine	1/9/2002	ND	0.3	ug/l	5	0.3		97
1058	N-Nitrosodi-n-Propylamine	7/18/2002	ND	0.8	ug/l	5	0.8		97
1059	N-Nitrosodi-n-Propylamine	1/16/2003	ND	0.8	ug/l	5	0.8		97
1060	N-Nitrosodi-n-Propylamine	8/14/2003	ND	0.8	ug/l	5	0.8		97
1061	N-Nitrosodi-n-Propylamine	8/28/2003	ND	0.8	ug/l	5	0.8		97
1062	N-Nitrosodi-n-Propylamine	1/15/2004	ND	0.8	ug/l	5	0.8		97
1063	N-Nitrosodi-n-Propylamine	7/16/2004	ND	0.8	ug/l	5	0.8		97
1064	N-Nitrosodi-n-Propylamine	1/13/2005	ND	0.8	ug/l	5	0.8		97
1065	N-Nitrosodiphenylamine	1/9/2002	ND	0.4	ug/l	1	0.4		98
1066	N-Nitrosodiphenylamine	1/13/2005	ND	0.6	ug/l	1	0.6		98
1067	N-Nitrosodiphenylamine	7/18/2002	ND	0.7	ug/l	1	0.7		98
1068	N-Nitrosodiphenylamine	1/16/2003	ND	0.7	ug/l	1	0.7		98
1069	N-Nitrosodiphenylamine	8/14/2003	ND	0.7	ug/l	1	0.7		98
1070	N-Nitrosodiphenylamine	8/28/2003	ND	0.7	ug/l	1	0.7		98
1071	N-Nitrosodiphenylamine	1/15/2004	ND	0.7	ug/l	1	0.7		98
1072	N-Nitrosodiphenylamine	7/16/2004	ND	0.7	ug/l	1	0.7		98
1073	Phenanthrene	1/9/2002	ND	0.03	ug/l	0.05	0.03		99
1074	Phenanthrene	7/24/2002	ND	0.03	ug/l	0.05	0.03		99
1075	Phenanthrene	1/16/2003	ND	0.03	ug/l	0.05	0.03		99
1076	Phenanthrene	8/14/2003	ND	0.03	ug/l	0.05	0.03		99
1077	Phenanthrene	8/28/2003	ND	0.03	ug/l	0.05	0.03		99
1078	Phenanthrene	1/15/2004	ND	0.03	ug/l	0.05	0.03		99
1079	Phenanthrene	7/16/2004	ND	0.03	ug/l	0.05	0.03		99
1080	Phenanthrene	1/13/2005	ND	0.031	ug/l	0.05	0.031		99
1081	Pyrene	1/9/2002	ND	0.03	ug/l	0.05	0.03		100
1082	Pyrene	7/24/2002	ND	0.03	ug/l	0.05	0.03		100
1083	Pyrene	1/16/2003	ND	0.03	ug/l	0.05	0.03		100
1084	Pyrene	8/14/2003	ND	0.03	ug/l	0.05	0.03		100
1085	Pyrene	8/28/2003	ND	0.03	ug/l	0.05	0.03		100
1086	Pyrene	1/15/2004	ND	0.03	ug/l	0.05	0.03		100
1087	Pyrene	7/16/2004	ND	0.03	ug/l	0.05	0.03		100
1088	Pyrene	1/13/2005	ND	0.031	ug/l	0.05	0.031		100
1089	1,2,4-Trichlorobenzene	1/9/2002	ND	0.3	ug/l	5	0.3		101

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1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
428	Cyanide	4/10/2003	ND	0.9	ug/l	3	0.9		14
429	Cyanide	6/6/2003	ND	0.9	ug/l	3	0.9		14
430	Cyanide	7/2/2003	ND	0.9	ug/l	3	0.9		14
431	Cyanide	7/31/2003	ND	0.9	ug/l	3	0.9		14
432	Cyanide	8/28/2003	ND	0.9	ug/l	3	0.9		14
433	Cyanide	9/11/2003	ND	0.9	ug/l	3	0.9		14
434	Cyanide	10/9/2003	ND	0.9	ug/l	3	0.9		14
435	Cyanide	12/4/2003	ND	0.9	ug/l	3	0.9		14
436	Cyanide	1/15/2004	ND	0.9	ug/l	3	0.9		14
437	Cyanide	2/12/2004	ND	0.9	ug/l	3	0.9		14
438	Cyanide	3/11/2004	ND	0.9	ug/l	3	0.9		14
439	Cyanide	4/22/2004	ND	0.9	ug/l	3	0.9		14
440	Cyanide	5/7/2004	ND	0.9	ug/l	3	0.9		14
441	Cyanide	7/16/2004	ND	0.9	ug/l	3	0.9		14
442	Cyanide	7/18/2002	ND	1.4	ug/l	3	1.4		14
443	Cyanide	1/9/2002	J	1	ug/l	3	0.6		14
444	Cyanide	1/7/2003	J	1	ug/l	3	0.9		14
445	Cyanide	8/6/2002	J	1.1	ug/l	3	0.9		14
446	Cyanide	11/6/2003	J	1.1	ug/l	3	0.9		14
447	Cyanide	5/8/2003	J	1.7	ug/l	3	0.9		14
448	Cyanide	6/3/2004		4	ug/l	3	0.9		14
449	Dixoin								16
450	Acrolein	1/13/2005	ND	0.56	ug/l	8	0.56		17
451	Acrolein	8/6/2002	ND	1	ug/l	5	1		17
452	Acrolein	1/16/2003	ND	1	ug/l	5	1		17
453	Acrolein	8/28/2003	ND	1	ug/l	5	1		17
454	Acrolein	1/15/2004	ND	1	ug/l	5	1		17
455	Acrolein	7/16/2004	ND	1	ug/l	5	1		17
456	Acrolein	1/9/2002	ND	3.3	ug/l	5	3.3		17
457	Acrylonitr	1/13/2005	ND	0.33	ug/l	2	0.33		18
458	Acrylonitr	8/6/2002	ND	1	ug/l	2	1		18
459	Acrylonitr	1/16/2003	ND	1	ug/l	2	1		18
460	Acrylonitr	8/28/2003	ND	1	ug/l	2	1		18
461	Acrylonitr	1/15/2004	ND	1	ug/l	2	1		18
462	Acrylonitr	7/16/2004	ND	1	ug/l	2	1		18
463	Acrylonitr	1/9/2002	ND	1.6	ug/l	2	1.6		18
464	Benzene	1/13/2005	ND	0.06	ug/l	0.5	0.06		19
465	Benzene	1/9/2002	ND	0.27	ug/l	0.5	0.27		19
466	Benzene	8/28/2003	ND	0.3	ug/l	0.5	0.3		19
467	Benzene	7/16/2004	ND	0.3	ug/l	0.5	0.3		19
468	Benzene	8/6/2002	J	0.4	ug/l	0.5	0.3		19
469	Benzene	1/15/2004		0.6	ug/l	0.5	0.3		19
470	Benzene	1/16/2003		1.6	ug/l	0.5	0.3		19
471	Bromoform	1/13/2005	ND	0.07	ug/l	0.5	0.07		20
472	Bromoform	1/9/2002	ND	0.1	ug/l	0.5	0.1		20
473	Bromoform	8/6/2002	ND	0.2	ug/l	0.5	0.2		20
474	Bromoform	1/16/2003	ND	0.2	ug/l	0.5	0.2		20
475	Bromoform	8/28/2003	ND	0.2	ug/l	0.5	0.2		20
476	Bromoform	1/15/2004	ND	0.2	ug/l	0.5	0.2		20
477	Bromoform	7/16/2004	ND	0.2	ug/l	0.5	0.2		20
478	Carbon Tetrachloride	1/13/2005	ND	0.06	ug/l	0.5	0.06		21
479	Carbon Tetrachloride	1/9/2002	ND	0.42	ug/l	0.5	0.42		21
480	Carbon Tetrachloride	8/6/2002	ND	0.42	ug/l	0.5	0.42		21
481	Carbon Tetrachloride	1/16/2003	ND	0.42	ug/l	0.5	0.42		21
482	Carbon Tetrachloride	8/28/2003	ND	0.42	ug/l	0.5	0.42		21
483	Carbon Tetrachloride	1/15/2004	ND	0.42	ug/l	0.5	0.42		21
484	Carbon Tetrachloride	7/16/2004	ND	0.42	ug/l	0.5	0.42		21
485	Chlorobenzene	1/13/2005	ND	0.06	ug/l	0.5	0.06		22
486	Chlorobenzene	1/9/2002	ND	0.19	ug/l	0.5	0.19		22
487	Chlorobenzene	8/6/2002	ND	0.3	ug/l	0.5	0.3		22
488	Chlorobenzene	1/16/2003	ND	0.3	ug/l	0.5	0.3		22

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
1090	1,2,4-Trichlorobenzene	7/18/2002	ND	0.6	ug/l	5	0.6		101
1091	1,2,4-Trichlorobenzene	1/16/2003	ND	0.6	ug/l	5	0.6		101
1092	1,2,4-Trichlorobenzene	8/14/2003	ND	0.6	ug/l	5	0.6		101
1093	1,2,4-Trichlorobenzene	8/28/2003	ND	0.6	ug/l	5	0.6		101
1094	1,2,4-Trichlorobenzene	1/15/2004	ND	0.6	ug/l	5	0.6		101
1095	1,2,4-Trichlorobenzene	7/16/2004	ND	0.6	ug/l	5	0.6		101
1096	1,2,4-Trichlorobenzene	1/13/2005	ND	1.3	ug/l	5	1.3		101
1097	Aldrin	1/9/2002	ND	0.003	ug/l	0.005	0.003		102
1098	Aldrin	7/18/2002	ND	0.003	ug/l	0.005	0.003		102
1099	Aldrin	1/16/2003	ND	0.003	ug/l	0.005	0.003		102
1100	Aldrin	8/14/2003	ND	0.003	ug/l	0.005	0.003		102
1101	Aldrin	8/28/2003	ND	0.003	ug/l	0.005	0.003		102
1102	Aldrin	1/15/2004	ND	0.003	ug/l	0.005	0.003		102
1103	Aldrin	7/16/2004	ND	0.003	ug/l	0.005	0.003		102
1104	Aldrin	1/13/2005	ND	0.003	ug/l	0.005	0.003		102
1105	A-BHC	1/9/2002	ND	0.002	ug/l	0.01	0.002		103
1106	A-BHC	7/18/2002	ND	0.003	ug/l	0.01	0.003		103
1107	A-BHC	1/16/2003	ND	0.003	ug/l	0.01	0.003		103
1108	A-BHC	8/14/2003	ND	0.003	ug/l	0.01	0.003		103
1109	A-BHC	8/28/2003	ND	0.003	ug/l	0.01	0.003		103
1110	A-BHC	1/15/2004	ND	0.003	ug/l	0.01	0.003		103
1111	A-BHC	7/16/2004	ND	0.003	ug/l	0.01	0.003		103
1112	A-BHC	1/13/2005	ND	0.003	ug/l	0.01	0.003		103
1113	B-BHC	1/9/2002	ND	0.001	ug/l	0.005	0.001		104
1114	B-BHC	1/13/2005	ND	0.003	ug/l	0.005	0.003		104
1115	B-BHC	7/18/2002	ND	0.004	ug/l	0.005	0.004		104
1116	B-BHC	1/16/2003	ND	0.004	ug/l	0.005	0.004		104
1117	B-BHC	8/14/2003	ND	0.004	ug/l	0.005	0.004		104
1118	B-BHC	8/28/2003	ND	0.004	ug/l	0.005	0.004		104
1119	B-BHC	1/15/2004	ND	0.004	ug/l	0.005	0.004		104
1120	B-BHC	7/16/2004	ND	0.004	ug/l	0.005	0.004		104
1121	G-BHC	1/9/2002	ND	0.001	ug/l	0.01	0.001		105
1122	G-BHC	7/18/2002	ND	0.003	ug/l	0.01	0.003		105
1123	G-BHC	1/16/2003	ND	0.003	ug/l	0.01	0.003		105
1124	G-BHC	8/14/2003	ND	0.003	ug/l	0.01	0.003		105
1125	G-BHC	8/28/2003	ND	0.003	ug/l	0.01	0.003		105
1126	G-BHC	1/15/2004	ND	0.003	ug/l	0.01	0.003		105
1127	G-BHC	7/16/2004	ND	0.003	ug/l	0.01	0.003		105
1128	G-BHC	1/13/2005	ND	0.003	ug/l	0.01	0.003		105
1129	Delta-BHC	1/9/2002	ND	0.001	ug/l	0.005	0.001		106
1130	Delta-BHC	7/18/2002	ND	0.002	ug/l	0.005	0.002		106
1131	Delta-BHC	1/16/2003	ND	0.002	ug/l	0.005	0.002		106
1132	Delta-BHC	8/14/2003	ND	0.002	ug/l	0.005	0.002		106
1133	Delta-BHC	8/28/2003	ND	0.002	ug/l	0.005	0.002		106
1134	Delta-BHC	1/15/2004	ND	0.002	ug/l	0.005	0.002		106
1135	Delta-BHC	7/16/2004	ND	0.002	ug/l	0.005	0.002		106
1136	Delta-BHC	1/13/2005	ND	0.003	ug/l	0.005	0.003		106
1137	Chlordane	1/9/2002	ND	0.005	ug/l	0.02	0.005		107
1138	Chlordane	7/18/2002	ND	0.005	ug/l	0.02	0.005		107
1139	Chlordane	1/16/2003	ND	0.005	ug/l	0.02	0.005		107
1140	Chlordane	8/14/2003	ND	0.005	ug/l	0.02	0.005		107
1141	Chlordane	8/28/2003	ND	0.005	ug/l	0.02	0.005		107
1142	Chlordane	1/15/2004	ND	0.005	ug/l	0.02	0.005		107
1143	Chlordane	7/16/2004	ND	0.005	ug/l	0.02	0.005		107
1144	Chlordane	1/13/2005	ND	0.021	ug/l	0.052	0.021		107
1145	4,4'-DDD	1/9/2002	ND	0.001	ug/l	0.01	0.001		108
1146	4,4'-DDD	7/18/2002	ND	0.002	ug/l	0.01	0.002		108
1147	4,4'-DDD	1/16/2003	ND	0.002	ug/l	0.01	0.002		108
1148	4,4'-DDD	8/14/2003	ND	0.002	ug/l	0.01	0.002		108
1149	4,4'-DDD	8/28/2003	ND	0.002	ug/l	0.01	0.002		108
1150	4,4'-DDD	1/15/2004	ND	0.002	ug/l	0.01	0.002		108

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Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
489	Chlorobenzene	8/28/2003	ND	0.3	ug/l	0.5	0.3		22
490	Chlorobenzene	1/15/2004	ND	0.3	ug/l	0.5	0.3		22
491	Chlorobenzene	7/16/2004	ND	0.3	ug/l	0.5	0.3		22
492	Chlordibromomethane	1/9/2002	ND	0.18	ug/l	0.5	0.18		23
493	Chlordibromomethane	8/6/2002	ND	0.3	ug/l	0.5	0.3		23
494	Chlordibromomethane	1/16/2003	ND	0.3	ug/l	0.5	0.3		23
495	Chlordibromomethane	8/28/2003	ND	0.3	ug/l	0.5	0.3		23
496	Chlordibromomethane	1/15/2004	ND	0.3	ug/l	0.5	0.3		23
497	Chlordibromomethane	7/16/2004	ND	0.3	ug/l	0.5	0.3		23
498	Chlordibromomethane	1/13/2005		1.9	ug/l	0.5	0.07		23
499	Chloroethane	1/13/2005	ND	0.07	ug/l	0.5	0.07		24
500	Chloroethane	1/9/2002	ND	0.34	ug/l	0.5	0.34		24
501	Chloroethane	8/6/2002	ND	0.34	ug/l	0.5	0.34		24
502	Chloroethane	1/16/2003	ND	0.34	ug/l	0.5	0.34		24
503	Chloroethane	8/28/2003	ND	0.34	ug/l	0.5	0.34		24
504	Chloroethane	1/15/2004	ND	0.34	ug/l	0.5	0.34		24
505	Chloroethane	7/16/2004	ND	0.34	ug/l	0.5	0.34		24
506	2-Chloroethylvinyl Ether	1/13/2005	ND	0.1	ug/l	1	0.1		25
507	2-Chloroethylvinyl Ether	1/9/2002	ND	0.31	ug/l	1	0.31		25
508	2-Chloroethylvinyl Ether	8/6/2002	ND	0.32	ug/l	1	0.32		25
509	2-Chloroethylvinyl Ether	1/16/2003	ND	0.32	ug/l	1	0.32		25
510	2-Chloroethylvinyl Ether	8/28/2003	ND	0.32	ug/l	1	0.32		25
511	2-Chloroethylvinyl Ether	1/15/2004	ND	0.32	ug/l	1	0.32		25
512	2-Chloroethylvinyl Ether	7/16/2004	ND	0.32	ug/l	1	0.32		25
513	Chloroform	1/9/2002	ND	0.24	ug/l	0.5	0.24		26
514	Chloroform	8/6/2002	ND	0.31	ug/l	0.5	0.31		26
515	Chloroform	1/16/2003	J	0.4	ug/l	0.5	0.31		26
516	Chloroform	8/28/2003	J	0.4	ug/l	0.5	0.31		26
517	Chloroform	1/15/2004		0.6	ug/l	0.5	0.31		26
518	Chloroform	7/16/2004		0.8	ug/l	0.5	0.31		26
519	Chloroform	1/13/2005		61	ug/l	0.5	0.05		26
520	Dichlorobromomethane	8/6/2002	ND	0.2	ug/l	0.5	0.2		27
521	Dichlorobromomethane	1/16/2003	ND	0.2	ug/l	0.5	0.2		27
522	Dichlorobromomethane	8/28/2003	ND	0.2	ug/l	0.5	0.2		27
523	Dichlorobromomethane	1/15/2004	ND	0.2	ug/l	0.5	0.2		27
524	Dichlorobromomethane	7/16/2004	ND	0.2	ug/l	0.5	0.2		27
525	Dichlorobromomethane	1/9/2002	ND	0.46	ug/l	0.5	0.46		27
526	Dichlorobromomethane	1/13/2005		17	ug/l	0.5	0.06		27
527	1,1-Dichloroethane	1/13/2005	ND	0.05	ug/l	0.5	0.05		28
528	1,1-Dichloroethane	1/9/2002	ND	0.28	ug/l	0.5	0.28		28
529	1,1-Dichloroethane	8/6/2002	ND	0.34	ug/l	0.5	0.34		28
530	1,1-Dichloroethane	1/16/2003	ND	0.34	ug/l	0.5	0.34		28
531	1,1-Dichloroethane	8/28/2003	ND	0.34	ug/l	0.5	0.34		28
532	1,1-Dichloroethane	1/15/2004	ND	0.34	ug/l	0.5	0.34		28
533	1,1-Dichloroethane	7/16/2004	ND	0.34	ug/l	0.5	0.34		28
534	1,2-Dichloroethane	1/13/2005	ND	0.06	ug/l	0.5	0.06		29
535	1,2-Dichloroethane	1/9/2002	ND	0.18	ug/l	0.5	0.18		29
536	1,2-Dichloroethane	8/6/2002	ND	0.2	ug/l	0.5	0.2		29
537	1,2-Dichloroethane	1/16/2003	ND	0.2	ug/l	0.5	0.2		29
538	1,2-Dichloroethane	8/28/2003	ND	0.2	ug/l	0.5	0.2		29
539	1,2-Dichloroethane	1/15/2004	ND	0.2	ug/l	0.5	0.2		29
540	1,2-Dichloroethane	7/16/2004	ND	0.2	ug/l	0.5	0.2		29
541	1,1-Dichloroethylene	1/13/2005	ND	0.06	ug/l	0.5	0.06		30
542	1,1-Dichloroethylene	1/9/2002	ND	0.37	ug/l	0.5	0.37		30
543	1,1-Dichloroethylene	8/6/2002	ND	0.49	ug/l	0.5	0.49		30
544	1,1-Dichloroethylene	1/16/2003	ND	0.49	ug/l	0.5	0.49		30
545	1,1-Dichloroethylene	8/28/2003	ND	0.49	ug/l	0.5	0.49		30
546	1,1-Dichloroethylene	1/15/2004	ND	0.49	ug/l	0.5	0.49		30
547	1,1-Dichloroethylene	7/16/2004	ND	0.49	ug/l	0.5	0.49		30
548	1,2-Dichloropropane	1/13/2005	ND	0.05	ug/l	0.5	0.05		31
549	1,2-Dichloropropane	8/6/2002	ND	0.2	ug/l	0.5	0.2		31

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
1151	4,4'-DDD	7/16/2004	ND	0.002	ug/l	0.01	0.002		108
1152	4,4'-DDD	1/13/2005	ND	0.002	ug/l	0.01	0.002		108
1153	4,4'-DDE	1/9/2002	ND	0.001	ug/l	0.01	0.001		109
1154	4,4'-DDE	7/18/2002	ND	0.002	ug/l	0.01	0.002		109
1155	4,4'-DDE	1/16/2003	ND	0.002	ug/l	0.01	0.002		109
1156	4,4'-DDE	8/14/2003	ND	0.002	ug/l	0.01	0.002		109
1157	4,4'-DDE	8/28/2003	ND	0.002	ug/l	0.01	0.002		109
1158	4,4'-DDE	1/15/2004	ND	0.002	ug/l	0.01	0.002		109
1159	4,4'-DDE	7/16/2004	ND	0.002	ug/l	0.01	0.002		109
1160	4,4'-DDE	1/13/2005	ND	0.003	ug/l	0.01	0.003		109
1161	4,4'-DDT	1/9/2002	ND	0.001	ug/l	0.01	0.001		110
1162	4,4'-DDT	7/18/2002	ND	0.003	ug/l	0.01	0.003		110
1163	4,4'-DDT	1/16/2003	ND	0.003	ug/l	0.01	0.003		110
1164	4,4'-DDT	8/14/2003	ND	0.003	ug/l	0.01	0.003		110
1165	4,4'-DDT	8/28/2003	ND	0.003	ug/l	0.01	0.003		110
1166	4,4'-DDT	1/15/2004	ND	0.003	ug/l	0.01	0.003		110
1167	4,4'-DDT	7/16/2004	ND	0.003	ug/l	0.01	0.003		110
1168	4,4'-DDT	1/13/2005	ND	0.003	ug/l	0.01	0.003		110
1169	Dieldrin	1/9/2002	ND	0.002	ug/l	0.01	0.002		111
1170	Dieldrin	7/18/2002	ND	0.002	ug/l	0.01	0.002		111
1171	Dieldrin	1/16/2003	ND	0.002	ug/l	0.01	0.002		111
1172	Dieldrin	8/14/2003	ND	0.002	ug/l	0.01	0.002		111
1173	Dieldrin	8/28/2003	ND	0.002	ug/l	0.01	0.002		111
1174	Dieldrin	1/15/2004	ND	0.002	ug/l	0.01	0.002		111
1175	Dieldrin	7/16/2004	ND	0.002	ug/l	0.01	0.002		111
1176	Dieldrin	1/13/2005	ND	0.002	ug/l	0.01	0.002		111
1177	Endosulfan-A	7/18/2002	ND	0.002	ug/l	0.01	0.002		112
1178	Endosulfan-A	1/16/2003	ND	0.002	ug/l	0.01	0.002		112
1179	Endosulfan-A	8/14/2003	ND	0.002	ug/l	0.01	0.002		112
1180	Endosulfan-A	8/28/2003	ND	0.002	ug/l	0.01	0.002		112
1181	Endosulfan-A	1/15/2004	ND	0.002	ug/l	0.01	0.002		112
1182	Endosulfan-A	7/16/2004	ND	0.002	ug/l	0.01	0.002		112
1183	Endosulfan-A	1/13/2005	ND	0.002	ug/l	0.01	0.002		112
1184	Endosulfan-A	1/9/2002	ND	0.003	ug/l	0.01	0.003		112
1185	Endosulfan-B	1/9/2002	ND	0.001	ug/l	0.01	0.001		113
1186	Endosulfan-B	7/18/2002	ND	0.002	ug/l	0.01	0.002		113
1187	Endosulfan-B	1/16/2003	ND	0.002	ug/l	0.01	0.002		113
1188	Endosulfan-B	8/14/2003	ND	0.002	ug/l	0.01	0.002		113
1189	Endosulfan-B	8/28/2003	ND	0.002	ug/l	0.01	0.002		113
1190	Endosulfan-B	1/15/2004	ND	0.002	ug/l	0.01	0.002		113
1191	Endosulfan-B	7/16/2004	ND	0.002	ug/l	0.01	0.002		113
1192	Endosulfan-B	1/13/2005	ND	0.002	ug/l	0.01	0.002		113
1193	Endosulfan Sulfate	1/9/2002	ND	0.001	ug/l	0.01	0.001		114
1194	Endosulfan Sulfate	7/18/2002	ND	0.002	ug/l	0.01	0.002		114
1195	Endosulfan Sulfate	1/16/2003	ND	0.002	ug/l	0.01	0.002		114
1196	Endosulfan Sulfate	8/14/2003	ND	0.002	ug/l	0.01	0.002		114
1197	Endosulfan Sulfate	8/28/2003	ND	0.002	ug/l	0.01	0.002		114
1198	Endosulfan Sulfate	1/15/2004	ND	0.002	ug/l	0.01	0.002		114
1199	Endosulfan Sulfate	7/16/2004	ND	0.002	ug/l	0.01	0.002		114
1200	Endosulfan Sulfate	1/13/2005	ND	0.003	ug/l	0.01	0.003		114
1201	Endrin	1/9/2002	ND	0.002	ug/l	0.01	0.002		115
1202	Endrin	7/18/2002	ND	0.002	ug/l	0.01	0.002		115
1203	Endrin	1/16/2003	ND	0.002	ug/l	0.01	0.002		115
1204	Endrin	8/14/2003	ND	0.002	ug/l	0.01	0.002		115
1205	Endrin	8/28/2003	ND	0.002	ug/l	0.01	0.002		115
1206	Endrin	1/15/2004	ND	0.002	ug/l	0.01	0.002		115
1207	Endrin	7/16/2004	ND	0.002	ug/l	0.01	0.002		115
1208	Endrin	1/13/2005	ND	0.002	ug/l	0.01	0.002		115
1209	Endrin Aldehyde	1/9/2002	ND	0.002	ug/l	0.01	0.002		116
1210	Endrin Aldehyde	7/18/2002	ND	0.002	ug/l	0.01	0.002		116
1211	Endrin Aldehyde	1/16/2003	ND	0.002	ug/l	0.01	0.002		116

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
550	1,2-Dichloropropane	1/16/2003	ND	0.2	ug/l	0.5	0.2		31
551	1,2-Dichloropropane	8/28/2003	ND	0.2	ug/l	0.5	0.2		31
552	1,2-Dichloropropane	1/15/2004	ND	0.2	ug/l	0.5	0.2		31
553	1,2-Dichloropropane	7/16/2004	ND	0.2	ug/l	0.5	0.2		31
554	1,2-Dichloropropane	1/9/2002	ND	0.22	ug/l	0.5	0.22		31
555	Ethylbenze	1/13/2005	ND	0.06	ug/l	0.5	0.06		33
556	Ethylbenze	1/9/2002	ND	0.3	ug/l	0.5	0.3		33
557	Ethylbenze	8/6/2002	ND	0.4	ug/l	0.5	0.4		33
558	Ethylbenze	1/16/2003	ND	0.4	ug/l	0.5	0.4		33
559	Ethylbenze	8/28/2003	ND	0.4	ug/l	0.5	0.4		33
560	Ethylbenze	1/15/2004	ND	0.4	ug/l	0.5	0.4		33
561	Ethylbenze	7/16/2004	ND	0.4	ug/l	0.5	0.4		33
562	Bromomethane	1/13/2005	ND	0.05	ug/l	0.5	0.05		34
563	Bromomethane	8/6/2002	ND	0.42	ug/l	0.5	0.42		34
564	Bromomethane	1/16/2003	ND	0.42	ug/l	0.5	0.42		34
565	Bromomethane	8/28/2003	ND	0.42	ug/l	0.5	0.42		34
566	Bromomethane	1/15/2004	ND	0.42	ug/l	0.5	0.42		34
567	Bromomethane	7/16/2004	ND	0.42	ug/l	0.5	0.42		34
568	Bromomethane	1/9/2002	ND	0.46	ug/l	0.5	0.46		34
569	Chloromethane	1/13/2005	ND	0.04	ug/l	0.5	0.04		35
570	Chloromethane	1/9/2002	ND	0.36	ug/l	0.5	0.36		35
571	Chloromethane	8/6/2002	ND	0.46	ug/l	0.5	0.46		35
572	Chloromethane	1/16/2003	ND	0.46	ug/l	0.5	0.46		35
573	Chloromethane	8/28/2003	ND	0.46	ug/l	0.5	0.46		35
574	Chloromethane	1/15/2004	ND	0.46	ug/l	0.5	0.46		35
575	Chloromethane	7/16/2004	ND	0.46	ug/l	0.5	0.46		35
576	Methylene Chloride	1/13/2005	ND	0.07	ug/l	0.5	0.07		36
577	Methylene Chloride	1/9/2002	ND	0.38	ug/l	2	0.38		36
578	Methylene Chloride	8/6/2002	ND	0.4	ug/l	2	0.4		36
579	Methylene Chloride	1/16/2003	ND	0.4	ug/l	2	0.4		36
580	Methylene Chloride	8/28/2003	ND	0.4	ug/l	2	0.4		36
581	Methylene Chloride	1/15/2004	ND	0.4	ug/l	0.5	0.4		36
582	Methylene Chloride	7/16/2004	ND	0.4	ug/l	0.5	0.4		36
583	1,1,2,2-Tetrachloroethane	1/13/2005	ND	0.06	ug/l	0.5	0.06		37
584	1,1,2,2-Tetrachloroethane	8/6/2002	ND	0.3	ug/l	0.5	0.3		37
585	1,1,2,2-Tetrachloroethane	1/16/2003	ND	0.3	ug/l	0.5	0.3		37
586	1,1,2,2-Tetrachloroethane	8/28/2003	ND	0.3	ug/l	0.5	0.3		37
587	1,1,2,2-Tetrachloroethane	1/15/2004	ND	0.3	ug/l	0.5	0.3		37
588	1,1,2,2-Tetrachloroethane	7/16/2004	ND	0.3	ug/l	0.5	0.3		37
589	1,1,2,2-Tetrachloroethane	1/9/2002	ND	0.34	ug/l	0.5	0.34		37
590	Tetrachloroethylene	1/13/2005	ND	0.06	ug/l	0.5	0.06		38
591	Tetrachloroethylene	1/9/2002	ND	0.32	ug/l	0.5	0.32		38
592	Tetrachloroethylene	8/6/2002	ND	0.44	ug/l	0.5	0.44		38
593	Tetrachloroethylene	1/16/2003	ND	0.44	ug/l	0.5	0.44		38
594	Tetrachloroethylene	8/28/2003	ND	0.44	ug/l	0.5	0.44		38
595	Tetrachloroethylene	1/15/2004	ND	0.44	ug/l	0.5	0.44		38
596	Tetrachloroethylene	7/16/2004	ND	0.44	ug/l	0.5	0.44		38
597	Toluene	1/13/2005	ND	0.06	ug/l	0.5	0.06		39
598	Toluene	1/9/2002	ND	0.25	ug/l	0.5	0.25		39
599	Toluene	8/28/2003	ND	0.32	ug/l	0.5	0.32		39
600	Toluene	1/15/2004	ND	0.32	ug/l	0.5	0.32		39
601	Toluene	7/16/2004	ND	0.32	ug/l	0.5	0.32		39
602	Toluene	8/6/2002	J	0.4	ug/l	0.5	0.32		39
603	Toluene	1/16/2003	J	0.45	ug/l	0.5	0.32		39
604	1,2-Trans-Dichloroethylene	1/13/2005	ND	0.05	ug/l	0.5	0.05		40
605	1,2-Trans-Dichloroethylene	1/9/2002	ND	0.3	ug/l	0.5	0.3		40
606	1,2-Trans-Dichloroethylene	8/6/2002	ND	0.43	ug/l	0.5	0.43		40
607	1,2-Trans-Dichloroethylene	1/16/2003	ND	0.43	ug/l	0.5	0.43		40
608	1,2-Trans-Dichloroethylene	8/28/2003	ND	0.43	ug/l	0.5	0.43		40
609	1,2-Trans-Dichloroethylene	1/15/2004	ND	0.43	ug/l	0.5	0.43		40
610	1,2-Trans-Dichloroethylene	7/16/2004	ND	0.43	ug/l	0.5	0.43		40

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
1212	Endrin Aldehyde	8/14/2003	ND	0.002	ug/l	0.01	0.002		116
1213	Endrin Aldehyde	8/28/2003	ND	0.002	ug/l	0.01	0.002		116
1214	Endrin Aldehyde	1/15/2004	ND	0.002	ug/l	0.01	0.002		116
1215	Endrin Aldehyde	7/16/2004	ND	0.002	ug/l	0.01	0.002		116
1216	Endrin Aldehyde	1/13/2005	ND	0.003	ug/l	0.01	0.003		116
1217	Heptachlor	1/9/2002	ND	0.003	ug/l	0.01	0.003		117
1218	Heptachlor	7/18/2002	ND	0.003	ug/l	0.01	0.003		117
1219	Heptachlor	1/16/2003	ND	0.003	ug/l	0.01	0.003		117
1220	Heptachlor	8/14/2003	ND	0.003	ug/l	0.01	0.003		117
1221	Heptachlor	8/28/2003	ND	0.003	ug/l	0.01	0.003		117
1222	Heptachlor	1/15/2004	ND	0.003	ug/l	0.01	0.003		117
1223	Heptachlor	7/16/2004	ND	0.003	ug/l	0.01	0.003		117
1224	Heptachlor	1/13/2005	ND	0.003	ug/l	0.01	0.003		117
1225	Heptchlor Epoxide	1/9/2002	ND	0.002	ug/l	0.01	0.002		118
1226	Heptchlor Epoxide	1/13/2005	ND	0.002	ug/l	0.01	0.002		118
1227	Heptchlor Epoxide	7/18/2002	ND	0.003	ug/l	0.01	0.003		118
1228	Heptchlor Epoxide	1/16/2003	ND	0.003	ug/l	0.01	0.003		118
1229	Heptchlor Epoxide	8/14/2003	ND	0.003	ug/l	0.01	0.003		118
1230	Heptchlor Epoxide	8/28/2003	ND	0.003	ug/l	0.01	0.003		118
1231	Heptchlor Epoxide	1/15/2004	ND	0.003	ug/l	0.01	0.003		118
1232	Heptchlor Epoxide	7/16/2004	ND	0.003	ug/l	0.01	0.003		118
1233	PCB-1016	1/13/2005	ND	0.031	ug/l	0.1	0.031		119
1234	PCB-1016	7/18/2002	ND	0.05	ug/l	0.1	0.05		119
1235	PCB-1016	1/16/2003	ND	0.05	ug/l	0.1	0.05		119
1236	PCB-1016	8/14/2003	ND	0.05	ug/l	0.1	0.05		119
1237	PCB-1016	8/28/2003	ND	0.05	ug/l	0.1	0.05		119
1238	PCB-1016	1/15/2004	ND	0.05	ug/l	0.1	0.05		119
1239	PCB-1016	7/16/2004	ND	0.05	ug/l	0.1	0.05		119
1240	PCB-1016	1/9/2002	ND	0.08	ug/l	0.1	0.08		119
1241	PCB-1221	1/9/2002	ND	0.03	ug/l	0.1	0.03		120
1242	PCB-1221	7/18/2002	ND	0.03	ug/l	0.1	0.03		120
1243	PCB-1221	1/16/2003	ND	0.03	ug/l	0.1	0.03		120
1244	PCB-1221	8/14/2003	ND	0.03	ug/l	0.1	0.03		120
1245	PCB-1221	8/28/2003	ND	0.03	ug/l	0.1	0.03		120
1246	PCB-1221	1/15/2004	ND	0.03	ug/l	0.1	0.03		120
1247	PCB-1221	7/16/2004	ND	0.03	ug/l	0.1	0.03		120
1248	PCB-1221	1/13/2005	ND	0.052	ug/l	0.1	0.052		120
1249	PCB-1232	1/9/2002	ND	0.04	ug/l	0.1	0.04		121
1250	PCB-1232	7/18/2002	ND	0.04	ug/l	0.1	0.04		121
1251	PCB-1232	1/16/2003	ND	0.04	ug/l	0.1	0.04		121
1252	PCB-1232	8/14/2003	ND	0.04	ug/l	0.1	0.04		121
1253	PCB-1232	8/28/2003	ND	0.04	ug/l	0.1	0.04		121
1254	PCB-1232	1/15/2004	ND	0.04	ug/l	0.1	0.04		121
1255	PCB-1232	7/16/2004	ND	0.04	ug/l	0.1	0.04		121
1256	PCB-1232	1/13/2005	ND	0.062	ug/l	0.1	0.062		121
1257	PCB-1242	1/13/2005	ND	0.041	ug/l	0.1	0.041		122
1258	PCB-1242	7/18/2002	ND	0.05	ug/l	0.1	0.05		122
1259	PCB-1242	1/16/2003	ND	0.05	ug/l	0.1	0.05		122
1260	PCB-1242	8/14/2003	ND	0.05	ug/l	0.1	0.05		122
1261	PCB-1242	8/28/2003	ND	0.05	ug/l	0.1	0.05		122
1262	PCB-1242	1/15/2004	ND	0.05	ug/l	0.1	0.05		122
1263	PCB-1242	7/16/2004	ND	0.05	ug/l	0.1	0.05		122
1264	PCB-1242	1/9/2002	ND	0.08	ug/l	0.1	0.08		122
1265	PCB-1248	1/9/2002	ND	0.05	ug/l	0.1	0.05		123
1266	PCB-1248	7/18/2002	ND	0.05	ug/l	0.1	0.05		123
1267	PCB-1248	1/16/2003	ND	0.05	ug/l	0.1	0.05		123
1268	PCB-1248	8/14/2003	ND	0.05	ug/l	0.1	0.05		123
1269	PCB-1248	8/28/2003	ND	0.05	ug/l	0.1	0.05		123
1270	PCB-1248	1/15/2004	ND	0.05	ug/l	0.1	0.05		123
1271	PCB-1248	7/16/2004	ND	0.05	ug/l	0.1	0.05		123
1272	PCB-1248	1/13/2005	ND	0.052	ug/l	0.1	0.052		123

Fact Sheet Attachment F-1(1)
C and H Sugar Company, Inc.
Discharge Point 001- Priority Pollutant Effluent Data

1	Antinomy	8/7/2002	ND	0.2	ug/l	5	0.2		1
611	1,1,1-Trichloroethane	1/13/2005	ND	0.06	ug/l	0.5	0.06		41
612	1,1,1-Trichloroethane	1/9/2002	ND	0.35	ug/l	0.5	0.35		41
613	1,1,1-Trichloroethane	8/6/2002	ND	0.49	ug/l	0.5	0.49		41
614	1,1,1-Trichloroethane	1/16/2003	ND	0.49	ug/l	0.5	0.49		41
615	1,1,1-Trichloroethane	8/28/2003	ND	0.49	ug/l	0.5	0.49		41
616	1,1,1-Trichloroethane	1/15/2004	ND	0.49	ug/l	0.5	0.49		41
617	1,1,1-Trichloroethane	7/16/2004	ND	0.49	ug/l	0.5	0.49		41
618	1,1,2-Trichloroethane	1/13/2005	ND	0.07	ug/l	0.5	0.07		42
619	1,1,2-Trichloroethane	1/9/2002	ND	0.27	ug/l	0.5	0.27		42
620	1,1,2-Trichloroethane	8/6/2002	ND	0.3	ug/l	0.5	0.3		42
621	1,1,2-Trichloroethane	1/16/2003	ND	0.3	ug/l	0.5	0.3		42
622	1,1,2-Trichloroethane	8/28/2003	ND	0.3	ug/l	0.5	0.3		42
623	1,1,2-Trichloroethane	1/15/2004	ND	0.3	ug/l	0.5	0.3		42
624	1,1,2-Trichloroethane	7/16/2004	ND	0.3	ug/l	0.5	0.3		42
625	Trichloroethylene	1/13/2005	ND	0.06	ug/l	0.5	0.06		43
626	Trichloroethylene	1/9/2002	ND	0.29	ug/l	0.5	0.29		43
627	Trichloroethylene	8/6/2002	ND	0.3	ug/l	0.5	0.3		43
628	Trichloroethylene	1/16/2003	ND	0.3	ug/l	0.5	0.3		43
629	Trichloroethylene	8/28/2003	ND	0.3	ug/l	0.5	0.3		43
630	Trichloroethylene	1/15/2004	ND	0.3	ug/l	0.5	0.3		43
631	Trichloroethylene	7/16/2004	ND	0.3	ug/l	0.5	0.3		43
632	Vinyl Chloride	1/13/2005	ND	0.05	ug/l	0.5	0.05		44
633	Vinyl Chloride	1/9/2002	ND	0.34	ug/l	0.5	0.34		44
634	Vinyl Chloride	8/6/2002	ND	0.47	ug/l	0.5	0.47		44
635	Vinyl Chloride	1/16/2003	ND	0.47	ug/l	0.5	0.47		44
636	Vinyl Chloride	8/28/2003	ND	0.47	ug/l	0.5	0.47		44
637	Vinyl Chloride	1/15/2004	ND	0.47	ug/l	0.5	0.47		44
638	Vinyl Chloride	7/16/2004	ND	0.47	ug/l	0.5	0.47		44
639	Chlorophenol	1/9/2002	ND	0.4	ug/l	5	0.4		45
640	Chlorophenol	7/18/2002	ND	0.6	ug/l	5	0.6		45
641	Chlorophenol	1/16/2003	ND	0.6	ug/l	5	0.6		45
642	Chlorophenol	8/14/2003	ND	0.6	ug/l	5	0.6		45
643	Chlorophenol	8/28/2003	ND	0.6	ug/l	5	0.6		45
644	Chlorophenol	1/15/2004	ND	0.6	ug/l	2	0.6		45
645	Chlorophenol	7/16/2004	ND	0.6	ug/l	2	0.6		45
646	Chlorophenol	1/13/2005	ND	1.2	ug/l	2	1.2		45
647	2,4-Dichlorophenol	1/9/2002	ND	0.3	ug/l	5	0.3		46
648	2,4-Dichlorophenol	7/18/2002	ND	0.7	ug/l	5	0.7		46
649	2,4-Dichlorophenol	1/16/2003	ND	0.7	ug/l	5	0.7		46
650	2,4-Dichlorophenol	8/14/2003	ND	0.7	ug/l	5	0.7		46
651	2,4-Dichlorophenol	8/28/2003	ND	0.7	ug/l	5	0.7		46
652	2,4-Dichlorophenol	1/15/2004	ND	0.7	ug/l	1	0.7		46
653	2,4-Dichlorophenol	7/16/2004	ND	0.7	ug/l	1	0.7		46
654	2,4-Dichlorophenol	1/13/2005	ND	0.9	ug/l	1	0.9		46
655	2,4-Dimethylphenol	1/9/2002	ND	0.3	ug/l	2	0.3		47
656	2,4-Dimethylphenol	7/18/2002	ND	0.9	ug/l	2	0.9		47
657	2,4-Dimethylphenol	1/16/2003	ND	0.9	ug/l	2	0.9		47
658	2,4-Dimethylphenol	8/14/2003	ND	0.9	ug/l	2	0.9		47
659	2,4-Dimethylphenol	8/28/2003	ND	0.9	ug/l	2	0.9		47
660	2,4-Dimethylphenol	1/15/2004	ND	0.9	ug/l	2	0.9		47
661	2,4-Dimethylphenol	7/16/2004	ND	0.9	ug/l	2	0.9		47
662	2,4-Dimethylphenol	1/13/2005	ND	1.1	ug/l	2	1.1		47

663	2-Methyl-4,6-Dinitrophenol	1/9/2002	ND	0.4	ug/l	5	0.4		48
1273	PCB-1254	1/13/2005	ND	0.062	ug/l	0.1	0.062		124
1274	PCB-1254	1/9/2002	ND	0.07	ug/l	0.1	0.07		124
1275	PCB-1254	7/18/2002	ND	0.07	ug/l	0.1	0.07		124
1276	PCB-1254	1/16/2003	ND	0.07	ug/l	0.1	0.07		124
1277	PCB-1254	8/14/2003	ND	0.07	ug/l	0.1	0.07		124
1278	PCB-1254	8/28/2003	ND	0.07	ug/l	0.1	0.07		124
1279	PCB-1254	1/15/2004	ND	0.07	ug/l	0.1	0.07		124
1280	PCB-1254	7/16/2004	ND	0.07	ug/l	0.1	0.07		124
1281	PCB-1260	1/9/2002	ND	0.05	ug/l	0.1	0.05		125
1282	PCB-1260	7/18/2002	ND	0.05	ug/l	0.1	0.05		125
1283	PCB-1260	1/16/2003	ND	0.05	ug/l	0.1	0.05		125
1284	PCB-1260	8/14/2003	ND	0.05	ug/l	0.1	0.05		125
1285	PCB-1260	8/28/2003	ND	0.05	ug/l	0.1	0.05		125
1286	PCB-1260	1/15/2004	ND	0.05	ug/l	0.1	0.05		125
1287	PCB-1260	7/16/2004	ND	0.05	ug/l	0.1	0.05		125
1288	PCB-1260	1/13/2005	ND	0.062	ug/l	0.1	0.062		125
1289	Toxaphene	1/13/2005	ND	0.15	ug/l	0.5	0.15		126
1290	Toxaphene	1/9/2002	ND	0.2	ug/l	0.5	0.2		126
1291	Toxaphene	7/18/2002	ND	0.4	ug/l	0.5	0.4		126
1292	Toxaphene	1/16/2003	ND	0.4	ug/l	0.5	0.4		126
1293	Toxaphene	8/14/2003	ND	0.4	ug/l	0.5	0.4		126
1294	Toxaphene	8/28/2003	ND	0.4	ug/l	0.5	0.4		126
1295	Toxaphene	1/15/2004	ND	0.4	ug/l	0.5	0.4		126
1296	Toxaphene	7/16/2004	ND	0.4	ug/l	0.5	0.4	2	126
1297	cis-1,3-DiClpe	1/13/2005	ND	0.06	ug/l	0.5	0.06		32-cis
1298	cis-1,3-DiClpe	8/6/2002	ND	0.2	ug/l	0.5	0.2		32-cis
1299	cis-1,3-DiClpe	1/16/2003	ND	0.2	ug/l	0.5	0.2		32-cis
1300	cis-1,3-DiClpe	8/28/2003	ND	0.2	ug/l	0.5	0.2		32-cis
1301	cis-1,3-DiClpe	1/15/2004	ND	0.2	ug/l	0.5	0.2		32-cis
1302	cis-1,3-DiClpe	7/16/2004	ND	0.2	ug/l	0.5	0.2		32-cis
1303	cis-1,3-DiClpe	1/9/2002	ND	0.25	ug/l	0.5	0.25		32-cis
1304	trans-1,3DiClpe	1/13/2005	ND	0.06	ug/l	0.5	0.06		32-tran
1305	trans-1,3DiClpe	1/9/2002	ND	0.22	ug/l	0.5	0.22		32-tran
1306	trans-1,3DiClpe	8/6/2002	ND	0.3	ug/l	0.5	0.3		32-tran
1307	trans-1,3DiClpe	1/16/2003	ND	0.3	ug/l	0.5	0.3		32-tran
1308	trans-1,3DiClpe	8/28/2003	ND	0.3	ug/l	0.5	0.3		32-tran
1309	trans-1,3DiClpe	1/15/2004	ND	0.3	ug/l	0.5	0.3		32-tran
1310	trans-1,3DiClpe	7/16/2004	ND	0.3	ug/l	0.5	0.3		32-tran
1311	Chlorpyrifos	1/13/2005	ND	0.03	ug/l	0.05	0.03		B
1312	Diazinon	1/13/2005	ND	0.04	ug/l	0.05	0.04		C
1313	Tributyltin	07/15/2004	ND	4E-04	µg/L		0.001		
1314	Tributyltin	1/15/2004	ND	4E-04	µg/L		0.001		
1315	Tributyltin	8/28/2003	ND	0.004	µg/L		0.001		
1316	Tributyltin	7/18/2002	ND	0.004	µg/L		0.002		

Appendix F-1(2)
Effluent Data for Priority Pollutants for Discharge Point 002

Fact Sheet Attachment F-1(2)
C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1	Antinomy	11/7/2002	ND	0.01	ug/l	0.5	0.01		1
2	Antinomy	4/8/2004	ND	0.01	ug/l	0.5	0.01		1
3	Antinomy	4/10/2003	ND	0.2	ug/l	0.5	0.2		1
4	Antinomy	7/31/2003	ND	0.2	ug/l	0.5	0.2		1
5	Antinomy	9/11/2003	ND	0.2	ug/l	0.5	0.2		1
6	Antinomy	11/7/2003	ND	0.2	ug/l	0.5	0.2		1
7	Antinomy	1/15/2004	ND	0.2	ug/l	0.5	0.2		1
8	Antinomy	2/12/2004	ND	0.2	ug/l	0.5	0.2		1
9	Antinomy	6/3/2004	ND	0.2	ug/l	0.5	0.2		1
10	Antinomy	3/11/2004	J	0.2	ug/l	0.5	0.2		1
11	Antinomy	2/14/2002	J	0.3	ug/l	0.5	0.01		1
12	Antinomy	4/11/2002	J	0.3	ug/l	0.5	0.01		1
13	Antinomy	12/5/2002	J	0.3	ug/l	0.5	0.01		1
14	Antinomy	2/13/2003	J	0.3	ug/l	0.5	0.2		1
15	Antinomy	5/9/2003	J	0.3	ug/l	0.5	0.2		1
16	Antinomy	6/5/2003	J	0.3	ug/l	0.5	0.2		1
17	Antinomy	7/17/2003	J	0.3	ug/l	0.5	0.2		1
18	Antinomy	10/9/2003	J	0.3	ug/l	0.5	0.2		1
19	Antinomy	7/1/2004	J	0.3	ug/l	0.5	0.2		1
20	Antinomy	5/9/2002	J	0.32	ug/l	0.5	0.01		1
21	Antinomy	8/28/2003	J	0.37	ug/l	0.5	0.2		1
22	Antinomy	3/15/2002	J	0.4	ug/l	0.5	0.01		1
23	Antinomy	6/6/2002	J	0.4	ug/l	1	0.2		1
24	Antinomy	7/4/2002	J	0.4	ug/l	0.5	0.2		1
25	Antinomy	10/10/2002	J	0.4	ug/l	1	0.2		1
26	Antinomy	9/12/2002	J	0.7	ug/l	1	0.01		1
27	Antinomy	1/2/2004		0.5	ug/l	0.5	0.2		1
28	Antinomy	8/1/2002		0.6	ug/l	0.5	0.2		1
29	Antinomy	1/2/2003		0.6	ug/l	0.5	0.2		1
30	Arsenic	11/7/2002	ND	0.14	ug/l	0.5	0.14		2
31	Arsenic	7/31/2003	ND	0.14	ug/l	0.5	0.14		2
32	Arsenic	12/4/2003	ND	0.14	ug/l	0.5	0.14		2
33	Arsenic	1/15/2004	ND	0.14	ug/l	0.5	0.14		2
34	Arsenic	2/12/2004	ND	0.14	ug/l	0.5	0.14		2
35	Arsenic	3/11/2004	ND	0.14	ug/l	0.5	0.14		2
36	Arsenic	4/8/2004	ND	0.14	ug/l	0.5	0.14		2
37	Arsenic	6/3/2004	ND	0.14	ug/l	0.5	0.14		2
38	Arsenic	3/15/2002	J	0.2	ug/l	0.5	0.08		2
39	Arsenic	4/10/2003	J	0.2	ug/l	0.5	0.14		2
40	Arsenic	5/9/2002	J	0.37	ug/l	0.5	0.08		2
41	Arsenic	2/14/2002	J	0.5	ug/l	0.5	0.08		2
42	Arsenic	7/17/2003		0.5	ug/l	0.5	0.14		2
43	Arsenic	4/11/2002		0.6	ug/l	0.5	0.08		2
44	Arsenic	6/6/2002		0.6	ug/l	0.5	0.2		2
45	Arsenic	12/5/2002		0.6	ug/l	0.5	0.14		2
46	Arsenic	6/5/2003		0.6	ug/l	0.5	0.14		2
47	Arsenic	2/13/2003		0.7	ug/l	0.5	0.2		2
48	Arsenic	7/4/2002		0.8	ug/l	0.5	0.2		2
49	Arsenic	9/11/2003		0.8	ug/l	0.5	0.14		2
50	Arsenic	10/9/2003		0.8	ug/l	0.5	0.14		2
51	Arsenic	11/7/2003		0.8	ug/l	0.5	0.14		2
52	Arsenic	8/1/2002		0.9	ug/l	0.5	0.2		2
53	Arsenic	5/9/2003		0.9	ug/l	0.5	0.14		2
54	Arsenic	9/12/2002		1	ug/l	1	0.14		2
55	Arsenic	10/10/2002		1	ug/l	1	0.14		2

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
630	DiClBromthan	7/18/2002		9	ug/l	1	0.2		27
631	DiClBromthan	6/6/2002		18	ug/l	1	0.2		27
632	DiClBromthan	1/2/2003		18	ug/l	0.5	0.2		27
633	DiClBromthan	7/17/2003		20	ug/l	0.5	0.2		27
634	DiClBromthan	1/15/2004		26	ug/l	0.5	0.2		27
635	DiClBromthan	1/3/2002		28	ug/l	0.5	0.46		27
636	1,1-DCA	1/3/2002	ND	0.28	ug/l	0.5	0.28		28
637	1,1-DCA	6/6/2002	ND	0.34	ug/l	1	0.34		28
638	1,1-DCA	7/18/2002	ND	0.34	ug/l	1	0.34		28
639	1,1-DCA	1/2/2003	ND	0.34	ug/l	0.5	0.34		28
640	1,1-DCA	7/17/2003	ND	0.34	ug/l	0.5	0.34		28
641	1,1-DCA	1/15/2004	ND	0.34	ug/l	0.5	0.34		28
642	12E	1/3/2002	ND	0.18	ug/l	0.5	0.18		29
643	12E	6/6/2002	ND	0.2	ug/l	1	0.2		29
644	12E	7/18/2002	ND	0.2	ug/l	1	0.2		29
645	12E	1/2/2003	ND	0.2	ug/l	0.5	0.2		29
646	12E	7/17/2003	ND	0.2	ug/l	0.5	0.2		29
647	12E	1/15/2004	ND	0.2	ug/l	0.5	0.2		29
648	11E	1/3/2002	ND	0.37	ug/l	0.5	0.37		30
649	11E	6/6/2002	ND	0.49	ug/l	1	0.49		30
650	11E	7/18/2002	ND	0.49	ug/l	1	0.49		30
651	11E	1/2/2003	ND	0.49	ug/l	0.5	0.49		30
652	11E	7/17/2003	ND	0.49	ug/l	0.5	0.49		30
653	11E	1/15/2004	ND	0.49	ug/l	0.5	0.49		30
654	1,2 Dchlopro	6/6/2002	ND	0.2	ug/l	1	0.2		31
655	1,2 Dchlopro	7/18/2002	ND	0.2	ug/l	1	0.2		31
656	1,2 Dchlopro	1/2/2003	ND	0.2	ug/l	0.5	0.2		31
657	1,2 Dchlopro	7/17/2003	ND	0.2	ug/l	0.5	0.2		31
658	1,2 Dchlopro	1/15/2004	ND	0.2	ug/l	0.5	0.2		31
659	1,2 Dchlopro	1/3/2002	ND	0.22	ug/l	0.5	0.22		31
660	Ethylbenze	1/3/2002	ND	0.3	ug/l	0.5	0.3		33
661	Ethylbenze	6/6/2002	ND	0.4	ug/l	1	0.4		33
662	Ethylbenze	7/18/2002	ND	0.4	ug/l	1	0.4		33
663	Ethylbenze	1/2/2003	ND	0.4	ug/l	0.5	0.4		33
664	Ethylbenze	7/17/2003	ND	0.4	ug/l	0.5	0.4		33
665	Ethylbenze	1/15/2004	ND	0.4	ug/l	0.5	0.4		33
666	Bromomethane	6/6/2002	ND	0.42	ug/l	1	0.42		34
667	Bromomethane	7/18/2002	ND	0.42	ug/l	1	0.42		34
668	Bromomethane	1/2/2003	ND	0.42	ug/l	0.5	0.42		34
669	Bromomethane	7/17/2003	ND	0.42	ug/l	0.5	0.42		34
670	Bromomethane	1/15/2004	ND	0.42	ug/l	0.5	0.42		34
671	Bromomethane	1/3/2002	ND	0.46	ug/l	0.5	0.46		34
672	Chloromethan	7/18/2002	ND	0.46	ug/l	1	0.46		35
673	Chloromethan	1/2/2003	ND	0.46	ug/l	0.5	0.46		35
674	Chloromethan	7/17/2003	ND	0.46	ug/l	0.5	0.46		35
675	Chloromethan	1/15/2004	ND	0.46	ug/l	0.5	0.46		35
676	Chloromethan	6/6/2002	J	0.5	ug/l	1	0.46		35
677	Chloromethan	1/3/2002		1	ug/l	0.5	0.36		35
678	Meth_Ch	1/3/2002	ND	0.38	ug/l	2	0.38		36
679	Meth_Ch	6/6/2002	ND	0.4	ug/l	3	0.4		36
680	Meth_Ch	7/18/2002	ND	0.4	ug/l	3	0.4		36
681	Meth_Ch	1/2/2003	ND	0.4	ug/l	2	0.4		36
682	Meth_Ch	7/17/2003	ND	0.4	ug/l	2	0.4		36
683	Meth_Ch	1/15/2004	ND	0.4	ug/l	0.5	0.4		36
684	1,1,2,2-TCA	6/6/2002	ND	0.3	ug/l	1	0.3		37

Fact Sheet Attachment F-1(2)
C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
56	Arsenic	7/1/2004		1	ug/l	0.5	0.14		2
57	Arsenic	8/28/2003		1.3	ug/l	0.5	0.14		2
58	Arsenic	1/2/2004		1.5	ug/l	0.5	0.14		2
59	Arsenic	1/2/2003		1.7	ug/l	0.5	0.14		2
60	Beryllium	2/14/2002	ND	0.06	ug/l	0.1	0.06		3
61	Beryllium	3/15/2002	ND	0.06	ug/l	0.2	0.06		3
62	Beryllium	4/11/2002	ND	0.06	ug/l	0.1	0.06		3
63	Beryllium	5/9/2002	ND	0.06	ug/l	0.1	0.06		3
64	Beryllium	6/6/2002	ND	0.06	ug/l	0.2	0.06		3
65	Beryllium	7/4/2002	ND	0.06	ug/l	0.1	0.06		3
66	Beryllium	8/1/2002	ND	0.06	ug/l	0.1	0.06		3
67	Beryllium	9/12/2002	ND	0.06	ug/l	0.1	0.06		3
68	Beryllium	10/10/2002	ND	0.06	ug/l	0.1	0.06		3
69	Beryllium	11/7/2002	ND	0.06	ug/l	0.1	0.06		3
70	Beryllium	12/5/2002	ND	0.06	ug/l	0.1	0.06		3
71	Beryllium	1/2/2003	ND	0.06	ug/l	0.1	0.06		3
72	Beryllium	2/13/2003	ND	0.06	ug/l	0.1	0.06		3
73	Beryllium	4/10/2003	ND	0.06	ug/l	0.2	0.06		3
74	Beryllium	5/9/2003	ND	0.06	ug/l	0.1	0.06		3
75	Beryllium	6/5/2003	ND	0.06	ug/l	0.1	0.06		3
76	Beryllium	7/17/2003	ND	0.06	ug/l	0.1	0.06		3
77	Beryllium	7/31/2003	ND	0.06	ug/l	0.1	0.06		3
78	Beryllium	8/28/2003	ND	0.06	ug/l	0.1	0.06		3
79	Beryllium	9/11/2003	ND	0.06	ug/l	0.1	0.06		3
80	Beryllium	10/9/2003	ND	0.06	ug/l	0.1	0.06		3
81	Beryllium	11/7/2003	ND	0.06	ug/l	0.1	0.06		3
82	Beryllium	12/4/2003	ND	0.06	ug/l	0.1	0.06		3
83	Beryllium	1/2/2004	ND	0.06	ug/l	0.1	0.06		3
84	Beryllium	1/15/2004	ND	0.06	ug/l	0.1	0.06		3
85	Beryllium	2/12/2004	ND	0.06	ug/l	0.1	0.06		3
86	Beryllium	3/11/2004	ND	0.06	ug/l	0.1	0.06		3
87	Beryllium	4/8/2004	ND	0.06	ug/l	0.1	0.06		3
88	Beryllium	6/3/2004	ND	0.06	ug/l	0.1	0.06		3
89	Beryllium	7/1/2004	ND	0.06	ug/l	0.1	0.06		3
90	Cadmium	2/14/2002	ND	0.04	ug/l	0.1	0.04		4
91	Cadmium	9/12/2002	ND	0.04	ug/l	0.2	0.04		4
92	Cadmium	11/7/2002	ND	0.04	ug/l	0.1	0.04		4
93	Cadmium	1/2/2003	ND	0.04	ug/l	0.1	0.04		4
94	Cadmium	4/10/2003	ND	0.04	ug/l	0.1	0.04		4
95	Cadmium	5/9/2003	ND	0.04	ug/l	0.1	0.04		4
96	Cadmium	6/5/2003	ND	0.04	ug/l	0.1	0.04		4
97	Cadmium	12/4/2003	ND	0.04	ug/l	0.1	0.04		4
98	Cadmium	1/2/2004	ND	0.04	ug/l	0.1	0.04		4
99	Cadmium	1/15/2004	ND	0.04	ug/l	0.1	0.04		4
100	Cadmium	2/12/2004	ND	0.04	ug/l	0.1	0.04		4
101	Cadmium	3/11/2004	ND	0.04	ug/l	0.1	0.04		4
102	Cadmium	4/8/2004	ND	0.04	ug/l	0.1	0.04		4
103	Cadmium	2/13/2003	J	0.03	ug/l	0.1	0.03		4
104	Cadmium	3/15/2002	J	0.04	ug/l	0.1	0.04		4
105	Cadmium	12/5/2002	J	0.04	ug/l	0.1	0.04		4
106	Cadmium	10/9/2003	J	0.04	ug/l	0.1	0.04		4
107	Cadmium	6/3/2004	J	0.04	ug/l	0.1	0.04		4
108	Cadmium	5/9/2002	J	0.05	ug/l	0.1	0.04		4
109	Cadmium	9/11/2003	J	0.06	ug/l	0.1	0.04		4
110	Cadmium	6/6/2002	J	0.07	ug/l	0.2	0.03		4

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
685	1,1,2,2-TCA	7/18/2002	ND	0.3	ug/l	1	0.3		37
686	1,1,2,2-TCA	1/2/2003	ND	0.3	ug/l	0.5	0.3		37
687	1,1,2,2-TCA	7/17/2003	ND	0.3	ug/l	0.5	0.3		37
688	1,1,2,2-TCA	1/15/2004	ND	0.3	ug/l	0.5	0.3		37
689	1,1,2,2-TCA	1/3/2002	ND	0.34	ug/l	0.5	0.34		37
690	Tetrachlor	1/3/2002	ND	0.32	ug/l	0.5	0.32		38
691	Tetrachlor	6/6/2002	ND	0.44	ug/l	1	0.44		38
692	Tetrachlor	7/18/2002	ND	0.44	ug/l	1	0.44		38
693	Tetrachlor	1/2/2003	ND	0.44	ug/l	0.5	0.44		38
694	Tetrachlor	7/17/2003	ND	0.44	ug/l	0.5	0.44		38
695	Tetrachlor	1/15/2004	ND	0.44	ug/l	0.5	0.44		38
696	Toluene	1/3/2002	ND	0.25	ug/l	0.5	0.25		39
697	Toluene	6/6/2002	ND	0.32	ug/l	1	0.32		39
698	Toluene	7/18/2002	ND	0.32	ug/l	1	0.32		39
699	Toluene	1/2/2003	ND	0.32	ug/l	0.5	0.32		39
700	Toluene	7/17/2003	ND	0.32	ug/l	0.5	0.32		39
701	Toluene	1/15/2004	ND	0.32	ug/l	0.5	0.32		39
702	T-1,2-DCE	1/3/2002	ND	0.3	ug/l	0.5	0.3		40
703	T-1,2-DCE	6/6/2002	ND	0.43	ug/l	1	0.43		40
704	T-1,2-DCE	7/18/2002	ND	0.43	ug/l	1	0.43		40
705	T-1,2-DCE	1/2/2003	ND	0.43	ug/l	0.5	0.43		40
706	T-1,2-DCE	7/17/2003	ND	0.43	ug/l	0.5	0.43		40
707	T-1,2-DCE	1/15/2004	ND	0.43	ug/l	0.5	0.43		40
708	1,1,1-TCA	1/3/2002	ND	0.35	ug/l	0.5	0.35		41
709	1,1,1-TCA	6/6/2002	ND	0.49	ug/l	1	0.49		41
710	1,1,1-TCA	7/18/2002	ND	0.49	ug/l	1	0.49		41
711	1,1,1-TCA	1/2/2003	ND	0.49	ug/l	0.5	0.49		41
712	1,1,1-TCA	7/17/2003	ND	0.49	ug/l	0.5	0.49		41
713	1,1,1-TCA	1/15/2004	ND	0.49	ug/l	0.5	0.49		41
714	1,1,2-TCA	1/3/2002	ND	0.27	ug/l	0.5	0.27		42
715	1,1,2-TCA	6/6/2002	ND	0.3	ug/l	1	0.3		42
716	1,1,2-TCA	7/18/2002	ND	0.3	ug/l	1	0.3		42
717	1,1,2-TCA	1/2/2003	ND	0.3	ug/l	0.5	0.3		42
718	1,1,2-TCA	7/17/2003	ND	0.3	ug/l	0.5	0.3		42
719	1,1,2-TCA	1/15/2004	ND	0.3	ug/l	0.5	0.3		42
720	TriClethene	1/3/2002	ND	0.29	ug/l	0.5	0.29		43
721	TriClethene	6/6/2002	ND	0.3	ug/l	1	0.3		43
722	TriClethene	7/18/2002	ND	0.3	ug/l	1	0.3		43
723	TriClethene	1/2/2003	ND	0.3	ug/l	0.5	0.3		43
724	TriClethene	7/17/2003	ND	0.3	ug/l	0.5	0.3		43
725	TriClethene	1/15/2004	ND	0.3	ug/l	0.5	0.3		43
726	Vinyl chlo	1/3/2002	ND	0.34	ug/l	0.5	0.34		44
727	Vinyl chlo	6/6/2002	ND	0.47	ug/l	1	0.47		44
728	Vinyl chlo	7/18/2002	ND	0.47	ug/l	1	0.47		44
729	Vinyl chlo	1/2/2003	ND	0.47	ug/l	0.5	0.47		44
730	Vinyl chlo	7/17/2003	ND	0.47	ug/l	0.5	0.47		44
731	Vinyl chlo	1/15/2004	ND	0.47	ug/l	0.5	0.47		44
732	2-Chlorophen	1/3/2002	ND	0.4	ug/l	5	0.4		45
733	2-Chlorophen	6/6/2002	ND	0.6	ug/l	5	0.6		45
734	2-Chlorophen	7/18/2002	ND	0.6	ug/l	5	0.6		45
735	2-Chlorophen	1/2/2003	ND	0.6	ug/l	5	0.6		45
736	2-Chlorophen	7/17/2003	ND	0.6	ug/l	5	0.6		45
737	2-Chlorophen	1/15/2004	ND	0.6	ug/l	2	0.6		45
738	2,4-Dcphenol	1/3/2002	ND	0.3	ug/l	5	0.3		46
739	2,4-Dcphenol	6/6/2002	ND	0.7	ug/l	5	0.7		46

Fact Sheet Attachment F-1(2)
C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
111	Cadmium	10/10/2002	J	0.07	ug/l	0.2	0.04		4
112	Cadmium	7/31/2003	J	0.07	ug/l	0.1	0.04		4
113	Cadmium	11/7/2003	J	0.07	ug/l	0.1	0.04		4
114	Cadmium	8/1/2002	J	0.08	ug/l	0.1	0.03		4
115	Cadmium	4/11/2002	J	0.09	ug/l	0.1	0.04		4
116	Cadmium	7/17/2003	J	0.09	ug/l	0.1	0.04		4
117	Cadmium	8/28/2003	J	0.096	ug/l	0.1	0.04		4
118	Cadmium	7/4/2002	J	0.1	ug/l	0.1	0.03		4
119	Cadmium	7/1/2004		0.2	ug/l	0.1	0.04		4
120	Chromium	03/15/2002	ND	0.2	ug/L	1	0.2		5
121	Chromium	07/04/2002	ND	0.2	ug/L	0.5	0.2		5
122	Chromium	08/01/2002	ND	0.2	ug/L	0.5	0.2		5
123	Chromium	09/12/2002	ND	0.2	ug/L	0.5	0.2		5
124	Chromium	10/10/2002	ND	0.2	ug/L	0.5	0.2		5
125	Chromium	07/31/2003	ND	0.2	ug/L	0.5	0.2		5
126	Chromium	08/28/2003	ND	0.2	ug/L	0.5	0.2		5
127	Chromium	10/09/2003	ND	0.2	ug/L	0.5	0.2		5
128	Chromium	11/07/2003	ND	0.2	ug/L	0.5	0.2		5
129	Chromium	12/04/2003	ND	0.2	ug/L	0.5	0.2		5
130	Chromium	01/02/2004	ND	0.2	ug/L	0.5	0.2		5
131	Chromium	01/15/2004	ND	0.2	ug/L	0.5	0.2		5
132	Chromium	02/12/2004	ND	0.2	ug/L	0.5	0.2		5
133	Chromium	04/08/2004	ND	0.2	ug/L	0.5	0.2		5
134	Chromium	07/01/2004	ND	0.2	ug/L	0.5	0.2		5
135	Chromium	04/11/2002	J	0.3	ug/L	0.5	0.2		5
136	Chromium	06/06/2002	J	0.3	ug/L	1	0.2		5
137	Chromium	07/17/2003	J	0.3	ug/L	0.5	0.2		5
138	Chromium	06/03/2004	J	0.3	ug/L	0.5	0.2		5
139	Chromium	05/09/2002	J	0.44	ug/L	0.5	0.2		5
140	Chromium	12/05/2002	J	0.47	ug/L	0.5	0.2		5
141	Chromium	02/14/2002	J	0.5	ug/L	0.5	0.2		5
142	Chromium	11/07/2002		0.6	ug/L	0.5	0.2		5
143	Chromium	02/13/2003		0.6	ug/L	0.5	0.2		5
144	Chromium	04/10/2003		0.6	ug/L	0.5	0.2		5
145	Chromium	09/11/2003		0.7	ug/L	0.5	0.2		5
146	Chromium	03/11/2004		0.7	ug/L	0.5	0.2		5
147	Chromium	01/02/2003		0.8	ug/L	0.5	0.2		5
148	Chromium	06/05/2003		1	ug/L	0.5	0.2		5
149	Chromium	05/09/2003		9.8	ug/L	0.5	0.2		5
150	Chromium (VI)	07/18/2002	ND	0.9	ug/L	10	0.9		5
151	Chromium (VI)	01/02/2003	ND	0.9	ug/L	10	0.9		5
152	Chromium (VI)	01/15/2004	ND	0.9	ug/L	10	0.9		5
153	Copper	8/11/2005		2.3	ug/l				6
154	Copper	12/4/2003		2.4	ug/l	0.5	0.2		6
155	Copper	4/8/2004		2.6	ug/l	0.5	0.2		6
156	Copper	6/3/2004		2.7	ug/l	0.5	0.2		6
157	Copper	5/5/2005		2.7	ug/l				6
158	Copper	7/14/2005		2.8	ug/l				6
159	Copper	9/8/2005		2.8	ug/l				6
160	Copper	9/12/2002		3	ug/l	1	0.2		6

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
740	2,4-Dcphenol	7/18/2002	ND	0.7	ug/l	5	0.7		46
741	2,4-Dcphenol	1/2/2003	ND	0.7	ug/l	5	0.7		46
742	2,4-Dcphenol	7/17/2003	ND	0.7	ug/l	5	0.7		46
743	2,4-Dcphenol	1/15/2004	ND	0.7	ug/l	1	0.7		46
744	2,4-Dmphenol	1/3/2002	ND	0.3	ug/l	2	0.3		47
745	2,4-Dmphenol	6/6/2002	ND	0.9	ug/l	2	0.9		47
746	2,4-Dmphenol	7/18/2002	ND	0.9	ug/l	2	0.9		47
747	2,4-Dmphenol	1/2/2003	ND	0.9	ug/l	2	0.9		47
748	2,4-Dmphenol	7/17/2003	ND	0.9	ug/l	2	0.9		47
749	2,4-Dmphenol	1/15/2004	ND	0.9	ug/l	2	0.9		47
750	4,6,-Dinit	1/3/2002	ND	0.4	ug/l	5	0.4		48
751	4,6,-Dinit	6/6/2002	ND	0.9	ug/l	5	0.9		48
752	4,6,-Dinit	7/18/2002	ND	0.9	ug/l	5	0.9		48
753	4,6,-Dinit	1/2/2003	ND	0.9	ug/l	5	0.9		48
754	4,6,-Dinit	7/17/2003	ND	0.9	ug/l	5	0.9		48
755	4,6,-Dinit	1/15/2004	ND	0.9	ug/l	5	0.9		48
756	2,4,- Dini	1/3/2002	ND	0.3	ug/l	5	0.3		49
757	2,4,- Dini	6/6/2002	ND	0.6	ug/l	5	0.6		49
758	2,4,- Dini	7/18/2002	ND	0.6	ug/l	5	0.6		49
759	2,4,- Dini	1/2/2003	ND	0.6	ug/l	5	0.6		49
760	2,4,- Dini	7/17/2003	ND	0.6	ug/l	5	0.6		49
761	2,4,- Dini	1/15/2004	ND	0.6	ug/l	5	0.6		49
762	2-Nitrophen	1/3/2002	ND	0.3	ug/l	5	0.3		50
763	2-Nitrophen	6/6/2002	ND	0.7	ug/l	5	0.7		50
764	2-Nitrophen	7/18/2002	ND	0.7	ug/l	5	0.7		50
765	2-Nitrophen	1/2/2003	ND	0.7	ug/l	5	0.7		50
766	2-Nitrophen	7/17/2003	ND	0.7	ug/l	5	0.7		50
767	2-Nitrophen	1/15/2004	ND	0.7	ug/l	5	0.7		50
768	4-Nitropheno	1/3/2002	ND	0.2	ug/l	5	0.2		51
769	4-Nitropheno	6/6/2002	ND	0.6	ug/l	5	0.6		51
770	4-Nitropheno	7/18/2002	ND	0.6	ug/l	5	0.6		51
771	4-Nitropheno	1/2/2003	ND	0.6	ug/l	5	0.6		51
772	4-Nitropheno	7/17/2003	ND	0.6	ug/l	5	0.6		51
773	4-Nitropheno	1/15/2004	ND	0.6	ug/l	5	0.6		51
774	4-cl-3mphen	1/3/2002	ND	0.3	ug/l	1	0.3		52
775	4-cl-3mphen	6/6/2002	ND	0.5	ug/l	1	0.5		52
776	4-cl-3mphen	7/18/2002	ND	0.5	ug/l	1	0.5		52
777	4-cl-3mphen	1/2/2003	ND	0.5	ug/l	1	0.5		52
778	4-cl-3mphen	7/17/2003	ND	0.5	ug/l	1	0.5		52
779	4-cl-3mphen	1/15/2004	ND	0.5	ug/l	1	0.5		52
780	PCP	1/3/2002	ND	0.4	ug/l	1	0.4		53
781	PCP	6/6/2002	ND	0.9	ug/l	1	0.9		53
782	PCP	7/18/2002	ND	0.9	ug/l	1	0.9		53
783	PCP	1/2/2003	ND	0.9	ug/l	1	0.9		53
784	PCP	7/17/2003	ND	0.9	ug/l	1	0.9		53
785	PCP	1/15/2004	ND	0.9	ug/l	1	0.9		53
786	Phenol	01/03/2002	ND	0.2	ug/L	1	0.2		54
787	Phenol	06/06/2002	ND	0.4	ug/L	1	0.4		54
788	Phenol	07/18/2002	ND	0.4	ug/L	1	0.4		54
789	Phenol	01/02/2003	ND	0.4	ug/L	1	0.4		54

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Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
161	Copper	11/7/2002		3	ug/l	0.5	0.2		6
162	Copper	2/14/2002		3.1	ug/l	0.5	0.2		6
163	Copper	11/4/2004		3.1	ug/l				6
164	Copper	12/2/2004		3.1	ug/l				6
165	Copper	3/10/2005		3.2	ug/l				6
166	Copper	10/6/2005		3.2	ug/l				6
167	Copper	4/7/2005		3.3	ug/l				6
168	Copper	2/12/2004		3.4	ug/l	0.5	0.2		6
169	Copper	12/1/2005		3.4	ug/l				6
170	Copper	12/5/2002		3.5	ug/l	0.5	0.2		6
171	Copper	3/15/2002		3.6	ug/l	0.5	0.2		6
172	Copper	2/10/2005		3.6	ug/l				6
173	Copper	1/15/2004		3.7	ug/l	0.5	0.2		6
174	Copper	3/11/2004		3.7	ug/l	0.5	0.2		6
175	Copper	8/12/2004		3.7	ug/l				6
176	Copper	11/3/2005		3.8	ug/l				6
177	Copper	9/11/2003		3.9	ug/l	0.5	0.2		6
178	Copper	10/10/2002		4	ug/l	1	0.2		6
179	Copper	1/2/2003		4	ug/l	0.5	0.2		6
180	Copper	9/9/2004		4	ug/l				6
181	Copper	2/13/2003		4.1	ug/l	0.5	0.3		6
182	Copper	7/31/2003		4.1	ug/l	0.5	0.2		6
183	Copper	1/13/2005		4.1	ug/l				6
184	Copper	11/7/2003		4.2	ug/l	0.5	0.2		6
185	Copper	4/10/2003		4.3	ug/l	0.5	0.2		6
186	Copper	7/17/2003		4.3	ug/l	0.5	0.2		6
187	Copper	6/2/2005		4.3	ug/l				6
188	Copper	10/9/2003		4.4	ug/l	0.5	0.2		6
189	Copper	1/2/2004		4.8	ug/l	0.5	0.2		6
190	Copper	7/1/2004		4.8	ug/l	0.5	0.2		6
191	Copper	4/11/2002		5	ug/l	0.5	0.2		6
192	Copper	5/9/2002		5.3	ug/l	0.5	0.2		6
193	Copper	8/28/2003		5.5	ug/l	0.5	0.2		6
194	Copper	10/7/2004		5.6	ug/l				6
195	Copper	7/4/2002		5.8	ug/l	0.5	0.3		6
196	Copper	6/5/2003		5.9	ug/l	0.5	0.2		6
197	Copper	6/6/2002		6	ug/l	0.5	0.3		6
198	Copper	8/1/2002		6.1	ug/l	0.5	0.3		6
199	Copper	5/9/2003		13	ug/l	0.5	0.2		6
200	Lead	4/10/2003	ND	0.02	ug/l	0.25	0.02		7
201	Lead	7/31/2003	ND	0.02	ug/l	0.25	0.02		7
202	Lead	8/28/2003	ND	0.02	ug/l	0.25	0.02		7
203	Lead	12/4/2003	ND	0.02	ug/l	0.25	0.02		7
204	Lead	7/1/2004	ND	0.02	ug/l	0.25	0.02		7
205	Lead	2/10/2005	J	0.04	ug/l				7
206	Lead	8/11/2005	J	0.11	ug/l				7
207	Lead	7/14/2005	J	0.12	ug/l				7
208	Lead	6/3/2004	J	0.13	ug/l	0.25	0.02		7
209	Lead	3/15/2002	J	0.15	ug/l	0.25	0.02		7
210	Lead	12/5/2002	J	0.15	ug/l	0.25	0.02		7
211	Lead	7/4/2002	J	0.16	ug/l	0.25	0.04		7
212	Lead	2/14/2002	J	0.18	ug/l	0.25	0.02		7
213	Lead	4/11/2002	J	0.18	ug/l	0.25	0.02		7
214	Lead	5/9/2002	J	0.18	ug/l	0.25	0.02		7
215	Lead	7/17/2003	J	0.2	ug/l	0.25	0.02		7

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
790	Phenol	07/17/2003	ND	0.4	ug/L	1	0.4		54
791	Phenol	01/15/2004	ND	0.4	ug/L	1	0.4		54
792	Phenols	07/17/2003	ND	1.6	ug/L	5	1.6		54
793	Phenols	01/02/2003	ND	3	ug/L	5	3		54
794	Phenols	01/15/2004	J	2.1	ug/L	5	1.6		54
795	Phenol	1/12/2005	J	4	ug/l				54
796	Phenols	11/07/2002	J	4	ug/L	5	3		54
797	Phenol	7/14/2005	<	2	ug/l				54
798	Phenols	06/06/2002		6	ug/L	5	3		54
799	2,4,6-Tric	1/3/2002	ND	0.2	ug/l	5	0.2		55
800	2,4,6-Tric	6/6/2002	ND	0.6	ug/l	5	0.6		55
801	2,4,6-Tric	7/18/2002	ND	0.6	ug/l	5	0.6		55
802	2,4,6-Tric	1/2/2003	ND	0.6	ug/l	5	0.6		55
803	2,4,6-Tric	7/17/2003	ND	0.6	ug/l	5	0.6		55
804	2,4,6-Tric	1/15/2004	ND	0.6	ug/l	5	0.6		55
805	Acnaphthene	1/3/2002	ND	0.17	ug/l	0.3	0.17		56
806	Acnaphthene	6/6/2002	ND	0.17	ug/l	0.3	0.17		56
807	Acnaphthene	11/7/2002	ND	0.17	ug/l	0.3	0.17		56
808	Acnaphthene	1/2/2003	ND	0.17	ug/l	0.3	0.17		56
809	Acnaphthene	7/17/2003	ND	0.17	ug/l	0.3	0.17		56
810	Acnaphthene	1/15/2004	ND	0.17	ug/l	0.3	0.17		56
811	Acenaphth	1/3/2002	ND	0.03	ug/l	0.2	0.03		57
812	Acenaphth	6/6/2002	ND	0.03	ug/l	0.2	0.03		57
813	Acenaphth	11/7/2002	ND	0.03	ug/l	0.2	0.03		57
814	Acenaphth	1/2/2003	ND	0.03	ug/l	0.2	0.03		57
815	Acenaphth	7/17/2003	ND	0.03	ug/l	0.2	0.03		57
816	Acenaphth	1/15/2004	ND	0.03	ug/l	0.2	0.03		57
817	Anthracene	1/3/2002	ND	0.16	ug/l	0.3	0.16		58
818	Anthracene	6/6/2002	ND	0.16	ug/l	0.3	0.16		58
819	Anthracene	11/7/2002	ND	0.16	ug/l	0.3	0.16		58
820	Anthracene	1/2/2003	ND	0.16	ug/l	0.3	0.16		58
821	Anthracene	7/17/2003	ND	0.16	ug/l	0.3	0.16		58
822	Anthracene	1/15/2004	ND	0.16	ug/l	0.3	0.16		58
823	Benzidine	1/3/2002	ND	0.3	ug/l	5	0.3		59
824	Benzidine	6/6/2002	ND	1	ug/l	5	1		59
825	Benzidine	7/18/2002	ND	1	ug/l	5	1		59
826	Benzidine	1/2/2003	ND	1	ug/l	5	1		59
827	Benzidine	7/17/2003	ND	1	ug/l	5	1		59
828	Benzidine	1/15/2004	ND	1	ug/l	5	1		59
829	1,2-BZ(AH)AN	1/3/2002	ND	0.12	ug/l	0.3	0.12		60
830	1,2-BZ(AH)AN	6/6/2002	ND	0.12	ug/l	0.3	0.12		60
831	1,2-BZ(AH)AN	11/7/2002	ND	0.12	ug/l	0.3	0.12		60
832	1,2-BZ(AH)AN	1/2/2003	ND	0.12	ug/l	0.3	0.12		60
833	1,2-BZ(AH)AN	7/17/2003	ND	0.12	ug/l	0.3	0.12		60
834	1,2-BZ(AH)AN	1/15/2004	ND	0.12	ug/l	0.3	0.12		60
835	BENZO(A)Pyre	1/3/2002	ND	0.09	ug/l	0.3	0.09		61
836	BENZO(A)Pyre	6/6/2002	ND	0.09	ug/l	0.3	0.09		61
837	BENZO(A)Pyre	11/7/2002	ND	0.09	ug/l	0.3	0.09		61
838	BENZO(A)Pyre	1/2/2003	ND	0.09	ug/l	0.3	0.09		61
839	BENZO(A)Pyre	7/17/2003	ND	0.09	ug/l	0.3	0.09		61
840	BENZO(A)Pyre	1/15/2004	ND	0.09	ug/l	0.3	0.09		61
841	3,4-BFLUOR	1/3/2002	ND	0.11	ug/l	0.3	0.11		62
842	3,4-BFLUOR	6/6/2002	ND	0.11	ug/l	0.3	0.11		62
843	3,4-BFLUOR	11/7/2002	ND	0.11	ug/l	0.3	0.11		62
844	3,4-BFLUOR	1/2/2003	ND	0.11	ug/l	0.3	0.11		62

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Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
216	Lead	9/9/2004	J	0.2	ug/l				7
217	Lead	2/13/2003	J	0.24	ug/l	0.25	0.04		7
218	Lead	6/6/2002	J	0.34	ug/l	0.5	0.04		7
219	Lead	9/12/2002	J	0.39	ug/l	0.5	0.02		7
220	Lead	11/4/2004	<	0	ug/l				7
221	Lead	12/2/2004	<	0	ug/l				7
222	Lead	8/12/2004	<	0.13	ug/l				7
223	Lead	9/11/2003		0.02	ug/l	0.25	0.02		7
224	Lead	9/8/2005		0.21	ug/l				7
225	Lead	3/10/2005		0.26	ug/l				7
226	Lead	6/2/2005		0.3	ug/l				7
227	Lead	10/6/2005		0.31	ug/l				7
228	Lead	2/12/2004		0.33	ug/l	0.25	0.02		7
229	Lead	4/8/2004		0.33	ug/l	0.25	0.02		7
230	Lead	4/7/2005		0.4	ug/l				7
231	Lead	5/5/2005		0.4	ug/l				7
232	Lead	11/3/2005		0.4	ug/l				7
233	Lead	1/2/2003		0.41	ug/l	0.25	0.02		7
234	Lead	3/11/2004		0.42	ug/l	0.25	0.02		7
235	Lead	10/10/2002		0.44	ug/l	0.25	0.02		7
236	Lead	1/2/2004		0.44	ug/l	0.25	0.02		7
237	Lead	6/5/2003		0.46	ug/l	0.25	0.02		7
238	Lead	12/1/2005		0.49	ug/l				7
239	Lead	10/7/2004		0.5	ug/l				7
240	Lead	1/15/2004		0.54	ug/l	0.25	0.02		7
241	Lead	8/1/2002		0.59	ug/l	0.25	0.04		7
242	Lead	11/7/2003		0.86	ug/l	0.25	0.02		7
243	Lead	1/13/2005		0.88	ug/l				7
244	Lead	11/7/2002		1.4	ug/l	0.25	0.02		7
245	Lead	10/9/2003		1.6	ug/l	0.25	0.02		7
246	Lead	5/9/2003		2.8	ug/l	0.25	0.02		7
247	Mercury	7/4/2002	ND	0.008	ug/l	0.2	0.008		8
248	Mercury	8/1/2002	ND	0.008	ug/l	0.05	0.008		8
249	Mercury	9/12/2002	ND	0.008	ug/l	0.2	0.008		8
250	Mercury	10/10/2002	ND	0.008	ug/l	0.2	0.008		8
251	Mercury	11/7/2002	ND	0.008	ug/l	0.2	0.008		8
252	Mercury	1/2/2003	ND	0.008	ug/l	0.2	0.008		8
253	Mercury	2/13/2003	ND	0.008	ug/l	0.05	0.008		8
254	Mercury	4/10/2003	ND	0.008	ug/l	0.2	0.008		8
255	Mercury	6/5/2003	ND	0.008	ug/l	0.2	0.008		8
256	Mercury	7/17/2003	ND	0.008	ug/l	0.2	0.008		8
257	Mercury	7/31/2003	ND	0.008	ug/l	0.2	0.008		8
258	Mercury	8/28/2003	ND	0.008	ug/l	0.2	0.008		8
259	Mercury	9/11/2003	ND	0.008	ug/l	0.2	0.008		8
260	Mercury	10/9/2003	ND	0.008	ug/l	0.2	0.008		8
261	Mercury	12/4/2003	ND	0.008	ug/l	0.2	0.008		8
262	Mercury	1/2/2004	ND	0.008	ug/l	0.2	0.008		8
263	Mercury	1/15/2004	ND	0.008	ug/l	0.2	0.008		8
264	Mercury	2/12/2004	ND	0.008	ug/l	0.2	0.008		8
265	Mercury	3/11/2004	ND	0.008	ug/l	0.2	0.008		8
266	Mercury	4/8/2004	ND	0.008	ug/l	0.2	0.008		8
267	Mercury	11/7/2003	J	0.009	ug/l	0.05	0.008		8
268	Mercury	5/9/2002	J	0.02	ug/l	0.2	0.008		8
269	Mercury	12/5/2002	J	0.03	ug/l	0.2	0.008		8
270	Mercury	3/4/2003		0.0009	ug/l	0.0005	0.00024		8

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
845	3,4-BFLUOR	7/17/2003	ND	0.11	ug/l	0.3	0.11		62
846	3,4-BFLUOR	1/15/2004	ND	0.11	ug/l	0.3	0.11		62
847	1,12-BZPERY	1/3/2002	ND	0.06	ug/l	0.1	0.06		63
848	1,12-BZPERY	6/6/2002	ND	0.06	ug/l	0.1	0.06		63
849	1,12-BZPERY	11/7/2002	ND	0.06	ug/l	0.1	0.06		63
850	1,12-BZPERY	1/2/2003	ND	0.06	ug/l	0.1	0.06		63
851	1,12-BZPERY	7/17/2003	ND	0.06	ug/l	0.1	0.06		63
852	1,12-BZPERY	1/15/2004	ND	0.06	ug/l	0.1	0.06		63
853	B(K)Flranthn	1/3/2002	ND	0.16	ug/l	0.3	0.16		64
854	B(K)Flranthn	6/6/2002	ND	0.16	ug/l	0.3	0.16		64
855	B(K)Flranthn	11/7/2002	ND	0.16	ug/l	0.3	0.16		64
856	B(K)Flranthn	1/2/2003	ND	0.16	ug/l	0.3	0.16		64
857	B(K)Flranthn	7/17/2003	ND	0.16	ug/l	0.3	0.16		64
858	B(K)Flranthn	1/15/2004	ND	0.16	ug/l	0.3	0.16		64
859	BEM	1/3/2002	ND	0.3	ug/l	5	0.3		65
860	BEM	6/6/2002	ND	0.9	ug/l	5	0.9		65
861	BEM	7/18/2002	ND	0.9	ug/l	5	0.9		65
862	BEM	1/2/2003	ND	0.9	ug/l	5	0.9		65
863	BEM	7/17/2003	ND	0.9	ug/l	5	0.9		65
864	BEM	1/15/2004	ND	0.9	ug/l	5	0.9		65
865	Bis(2-chlo	1/3/2002	ND	0.3	ug/l	1	0.3		66
866	Bis(2-chlo	6/6/2002	ND	0.7	ug/l	1	0.7		66
867	Bis(2-chlo	7/18/2002	ND	0.7	ug/l	1	0.7		66
868	Bis(2-chlo	1/2/2003	ND	0.7	ug/l	1	0.7		66
869	Bis(2-chlo	7/17/2003	ND	0.7	ug/l	1	0.7		66
870	Bis(2-chlo	1/15/2004	ND	0.7	ug/l	1	0.7		66
871	BIT	6/6/2002	ND	0.6	ug/l	2	0.6		67
872	BIT	7/18/2002	ND	0.6	ug/l	2	0.6		67
873	BIT	1/2/2003	ND	0.6	ug/l	2	0.6		67
874	BIT	7/17/2003	ND	0.6	ug/l	2	0.6		67
875	BIT	1/15/2004	ND	0.6	ug/l	2	0.6		67
876	BIT	1/3/2002	ND	1	ug/l	2	1		67
877	Bis(2-ethy	1/3/2002	ND	0.3	ug/l	5	0.3		68
878	Bis(2-ethy	6/6/2002	ND	0.8	ug/l	5	0.8		68
879	Bis(2-ethy	1/2/2003	ND	0.8	ug/l	5	0.8		68
880	Bis(2-ethy	7/18/2002	E	160	ug/l	5	0.8		68
881	Bis(2-ethy	7/17/2003		14	ug/l	5	0.8		68
882	Bis(2-ethy	1/15/2004		17	ug/l	5	0.8		68
883	4-BP-Phnethr	6/6/2002	ND	0.4	ug/l	5	0.4		69
884	4-BP-Phnethr	7/18/2002	ND	0.4	ug/l	5	0.4		69
885	4-BP-Phnethr	1/2/2003	ND	0.4	ug/l	5	0.4		69
886	4-BP-Phnethr	7/17/2003	ND	0.4	ug/l	5	0.4		69
887	4-BP-Phnethr	1/15/2004	ND	0.4	ug/l	5	0.4		69
888	4-BP-Phnethr	1/3/2002	ND	0.5	ug/l	5	0.5		69
889	Btlbenphthl	1/3/2002	ND	0.4	ug/l	5	0.4		70
890	Btlbenphthl	6/6/2002	ND	0.8	ug/l	5	0.8		70
891	Btlbenphthl	7/18/2002	ND	0.8	ug/l	5	0.8		70
892	Btlbenphthl	1/2/2003	ND	0.8	ug/l	5	0.8		70
893	Btlbenphthl	7/17/2003	ND	0.8	ug/l	5	0.8		70
894	Btlbenphthl	1/15/2004	ND	0.8	ug/l	5	0.8		70
895	2-Chlornapth	1/3/2002	ND	0.3	ug/l	5	0.3		71
896	2-Chlornapth	6/6/2002	ND	0.5	ug/l	5	0.5		71
897	2-Chlornapth	7/18/2002	ND	0.5	ug/l	5	0.5		71
898	2-Chlornapth	1/2/2003	ND	0.5	ug/l	5	0.5		71
899	2-Chlornapth	7/17/2003	ND	0.5	ug/l	5	0.5		71

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C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
271	Mercury	12/20/2005		0.002	ug/l				8
272	Mercury	1/4/2005		0.0021	ug/l				8
273	Mercury	1/18/2005		0.0025	ug/l				8
274	Mercury	5/11/2004		0.0029	ug/l	0.0005	0.00024		8
275	Mercury	8/16/2005		0.0034	ug/l				8
276	Mercury	5/14/2002		0.0036	ug/l	0.0005	0.00017		8
277	Mercury	8/31/2004		0.0037	ug/l				8
278	Mercury	6/7/2005		0.004	ug/l				8
279	Mercury	3/3/2004		0.0042	ug/l	0.0005	0.00024		8
280	Mercury	2/17/2004		0.0043	ug/l	0.0005	0.00024		8
281	Mercury	12/6/2005		0.0046	ug/l				8
282	Mercury	6/11/2002		0.0047	ug/l	0.0005	0.00024		8
283	Mercury	10/25/2005		0.0048	ug/l				8
284	Mercury	9/17/2002		0.0049	ug/l	0.0005	0.00017		8
285	Mercury	1/20/2004		0.0056	ug/l	0.0005	0.00024		8
286	Mercury	2/5/2002		0.006	ug/l	0.0005	0.00017		8
287	Mercury	6/21/2005		0.006	ug/l				8
288	Mercury	7/19/2005		0.0066	ug/l				8
289	Mercury	12/21/2004		0.0077	ug/l				8
290	Mercury	2/3/2004		0.0078	ug/l	0.0005	0.00024		8
291	Mercury	6/25/2002		0.0083	ug/l	0.0005	0.00024		8
292	Mercury	1/6/2004		0.0083	ug/l	0.0005	0.00024		8
293	Mercury	4/15/2003		0.0089	ug/l	0.0005	0.00024		8
294	Mercury	2/1/2005		0.0089	ug/l				8
295	Mercury	2/4/2003		0.0093	ug/l	0.0005	0.00024		8
296	Mercury	7/5/2005		0.0093	ug/l				8
297	Mercury	7/9/2002		0.0098	ug/l	0.0005	0.00024		8
298	Mercury	3/29/2005		0.01	ug/l				8
299	Mercury	2/15/2005		0.011	ug/l				8
300	Mercury	8/2/2005		0.011	ug/l				8
301	Mercury	10/11/2005		0.011	ug/l				8
302	Mercury	7/23/2002		0.012	ug/l	0.0005	0.00024		8
303	Mercury	10/12/2004		0.012	ug/l				8
304	Mercury	3/15/2005		0.012	ug/l				8
305	Mercury	5/24/2005		0.012	ug/l				8
306	Mercury	4/13/2004		0.013	ug/l	0.0005	0.00024		8
307	Mercury	4/12/2005		0.013	ug/l				8
308	Mercury	11/12/2002		0.014	ug/l	0.0005	0.00024		8
309	Mercury	12/24/2002		0.014	ug/l	0.0005	0.00024		8
310	Mercury	5/10/2005		0.014	ug/l				8
311	Mercury	9/13/2005		0.014	ug/l				8
312	Mercury	12/10/2002		0.015	ug/l	0.0005	0.00024		8
313	Mercury	1/21/2003		0.015	ug/l	0.0005	0.00024		8
314	Mercury	3/1/2005		0.015	ug/l				8
315	Mercury	4/1/2003		0.016	ug/l	0.0005	0.00024		8
316	Mercury	11/22/2004		0.017	ug/l				8
317	Mercury	11/26/2002		0.019	ug/l	0.0005	0.00024		8
318	Mercury	8/3/2004		0.02	ug/l				8
319	Mercury	8/17/2004		0.021	ug/l				8
320	Mercury	9/3/2002		0.024	ug/l	0.0005	0.00024		8
321	Mercury	10/15/2002		0.024	ug/l	0.0005	0.00024		8
322	Mercury	7/6/2004		0.024	ug/l	0.0005	0.00024		8
323	Mercury	3/5/2002		0.026	ug/l	0.0005	0.00017		8
324	Mercury	11/8/2005		0.028	ug/l				8
325	Mercury	1/8/2002		0.033	ug/l	0.0005	0.00017		8

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
900	2-Chlornapth	1/15/2004	ND	0.5	ug/l	5	0.5		71
901	4-Cppether	1/3/2002	ND	0.4	ug/l	5	0.4		72
902	4-Cppether	6/6/2002	ND	0.5	ug/l	5	0.5		72
903	4-Cppether	7/18/2002	ND	0.5	ug/l	5	0.5		72
904	4-Cppether	1/2/2003	ND	0.5	ug/l	5	0.5		72
905	4-Cppether	7/17/2003	ND	0.5	ug/l	5	0.5		72
906	4-Cppether	1/15/2004	ND	0.5	ug/l	5	0.5		72
907	CHRYSENE	1/3/2002	ND	0.14	ug/l	0.3	0.14		73
908	CHRYSENE	6/6/2002	ND	0.14	ug/l	0.3	0.14		73
909	CHRYSENE	11/7/2002	ND	0.14	ug/l	0.3	0.14		73
910	CHRYSENE	1/2/2003	ND	0.14	ug/l	0.3	0.14		73
911	CHRYSENE	7/17/2003	ND	0.14	ug/l	0.3	0.14		73
912	CHRYSENE	1/15/2004	ND	0.14	ug/l	0.3	0.14		73
913	DBZ(AH)ANTHR	1/3/2002	ND	0.04	ug/l	0.1	0.04		74
914	DBZ(AH)ANTHR	6/6/2002	ND	0.04	ug/l	0.1	0.04		74
915	DBZ(AH)ANTHR	11/7/2002	ND	0.04	ug/l	0.1	0.04		74
916	DBZ(AH)ANTHR	1/2/2003	ND	0.04	ug/l	0.1	0.04		74
917	DBZ(AH)ANTHR	7/17/2003	ND	0.04	ug/l	0.1	0.04		74
918	DBZ(AH)ANTHR	1/15/2004	ND	0.04	ug/l	0.1	0.04		74
919	1,2 Dichl-B	1/3/2002	ND	0.12	ug/l	0.5	0.12		75
920	1,2 Dichl-B	7/18/2002	ND	0.2	ug/l	1	0.2		75
921	1,2 Dichl-B	1/15/2004	ND	0.2	ug/l	0.5	0.2		75
922	1,2 Dichl-B	6/6/2002	ND	0.6	ug/l	2	0.6		75
923	1,2 Dichl-B	1/2/2003	ND	0.6	ug/l	2	0.6		75
924	1,2 Dichl-B	7/17/2003	ND	0.6	ug/l	2	0.6		75
925	1,3 Dichl-B	1/3/2002	ND	0.16	ug/l	0.5	0.16		76
926	1,3 Dichl-B	7/18/2002	ND	0.3	ug/l	1	0.3		76
927	1,3 Dichl-B	1/2/2003	ND	0.3	ug/l	0.5	0.3		76
928	1,3 Dichl-B	6/6/2002	ND	0.6	ug/l	1	0.6		76
929	1,3 Dichl-B	7/17/2003	ND	0.6	ug/l	1	0.6		76
930	1,3 Dichl-B	1/15/2004	ND	0.6	ug/l	1	0.6		76
931	1,4-Dichlo	1/3/2002	ND	0.3	ug/l	1	0.3		77
932	1,4-Dichlo	7/18/2002	ND	0.3	ug/l	1	0.3		77
933	1,4-Dichlo	7/17/2003	ND	0.3	ug/l	0.5	0.3		77
934	1,4-Dichlo	6/6/2002	ND	0.6	ug/l	1	0.6		77
935	1,4-Dichlo	1/2/2003	ND	0.6	ug/l	1	0.6		77
936	1,4-Dichlo	1/15/2004	ND	0.6	ug/l	1	0.6		77
937	3,3-Dichlo	6/6/2002	ND	0.3	ug/l	5	0.3		78
938	3,3-Dichlo	7/18/2002	ND	0.3	ug/l	5	0.3		78
939	3,3-Dichlo	1/2/2003	ND	0.3	ug/l	5	0.3		78
940	3,3-Dichlo	7/17/2003	ND	0.3	ug/l	5	0.3		78
941	3,3-Dichlo	1/15/2004	ND	0.3	ug/l	5	0.3		78
942	3,3-Dichlo	1/3/2002	ND	0.4	ug/l	5	0.4		78
943	Diethyl ph	1/3/2002	ND	0.4	ug/l	2	0.4		79
944	Diethyl ph	6/6/2002	ND	0.7	ug/l	2	0.7		79
945	Diethyl ph	7/18/2002	ND	0.7	ug/l	2	0.7		79
946	Diethyl ph	1/2/2003	ND	0.7	ug/l	2	0.7		79
947	Diethyl ph	7/17/2003	ND	0.7	ug/l	2	0.7		79
948	Diethyl ph	1/15/2004	ND	0.7	ug/l	2	0.7		79
949	Dimethyl p	1/3/2002	ND	0.4	ug/l	2	0.4		80
950	Dimethyl p	6/6/2002	ND	0.7	ug/l	2	0.7		80
951	Dimethyl p	7/18/2002	ND	0.7	ug/l	2	0.7		80
952	Dimethyl p	1/2/2003	ND	0.7	ug/l	2	0.7		80
953	Dimethyl p	7/17/2003	ND	0.7	ug/l	2	0.7		80
954	Dimethyl p	1/15/2004	ND	0.7	ug/l	2	0.7		80

Fact Sheet Attachment F-1(2)
C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
326	Mercury	11/22/2005		0.034	ug/l				8
327	Mercury	1/7/2003		0.051	ug/l	0.0005	0.00024		8
328	Mercury	8/6/2002		0.055	ug/l	0.0005	0.00024		8
329	Mercury	8/20/2002		0.056	ug/l	0.0005	0.00024		8
330	Mercury	10/1/2002		0.056	ug/l	0.0005	0.00024		8
331	Mercury	6/8/2004		0.056	ug/l	0.0005	0.00024		8
332	Mercury	3/15/2002		0.07	ug/l	0.05	0.008		8
333	Mercury	6/6/2002		0.09	ug/l	0.05	0.008		8
334	Mercury	9/28/2004		0.1	ug/l				8
335	Mercury	4/11/2002		0.12	ug/l	0.05	0.008		8
336	Mercury	3/19/2003		0.15	ug/l	0.001	0.00024		8
337	Mercury	5/9/2003		0.2	ug/l	0.2	0.008		8
338	Mercury	2/18/2003		0.203	ug/l	0.0025	0.00024		8
339	Mercury	9/14/2004		0.43	ug/l				8
340	Mercury	10/26/2004		0.98	ug/l				8
341	Nickel	2/14/2002		2.8	ug/l	0.5	0.2		9
342	Nickel	2/14/2002		2.8	ug/l	0.5	0.2		9
343	Nickel	3/15/2002		3.3	ug/l	0.5	0.2		9
344	Nickel	3/15/2002		3.3	ug/l	0.5	0.2		9
345	Nickel	6/3/2004		3.7	ug/l	0.5	0.2		9
346	Nickel	6/3/2004		3.7	ug/l	0.5	0.2		9
347	Nickel	1/2/2003		3.8	ug/l	0.5	0.2		9
348	Nickel	1/2/2003		3.8	ug/l	0.5	0.2		9
349	Nickel	4/7/2005		4.3	ug/l				9
350	Nickel	8/11/2005		4.3	ug/l				9
351	Nickel	4/10/2003		4.4	ug/l	0.5	0.2		9
352	Nickel	4/10/2003		4.4	ug/l	0.5	0.2		9
353	Nickel	1/2/2004		4.5	ug/l	0.5	0.2		9
354	Nickel	1/2/2004		4.5	ug/l	0.5	0.2		9
355	Nickel	11/3/2005		4.5	ug/l				9
356	Nickel	12/1/2005		4.5	ug/l				9
357	Nickel	7/14/2005		4.7	ug/l				9
358	Nickel	11/7/2002		4.9	ug/l	0.5	0.2		9
359	Nickel	11/7/2002		4.9	ug/l	0.5	0.2		9
360	Nickel	2/10/2005		4.9	ug/l				9
361	Nickel	5/9/2003		5	ug/l	0.5	0.2		9
362	Nickel	3/11/2004		5	ug/l	0.5	0.2		9
363	Nickel	5/9/2003		5	ug/l	0.5	0.2		9
364	Nickel	3/11/2004		5	ug/l	0.5	0.2		9
365	Nickel	2/12/2004		5.1	ug/l	0.5	0.2		9
366	Nickel	2/12/2004		5.1	ug/l	0.5	0.2		9
367	Nickel	3/10/2005		5.2	ug/l				9
368	Nickel	10/6/2005		5.2	ug/l				9
369	Nickel	12/5/2002		5.3	ug/l	0.5	0.2		9
370	Nickel	1/15/2004		5.3	ug/l	0.5	0.2		9
371	Nickel	12/5/2002		5.3	ug/l	0.5	0.2		9
372	Nickel	1/15/2004		5.3	ug/l	0.5	0.2		9
373	Nickel	11/4/2004		5.5	ug/l				9
374	Nickel	9/8/2005		5.5	ug/l				9
375	Nickel	12/2/2004		5.7	ug/l				9
376	Nickel	1/13/2005		5.7	ug/l				9
377	Nickel	7/17/2003		5.8	ug/l	0.5	0.2		9
378	Nickel	7/17/2003		5.8	ug/l	0.5	0.2		9
379	Nickel	10/7/2004		5.8	ug/l				9
380	Nickel	6/2/2005		5.8	ug/l				9

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
955	Di-n-butyl	1/3/2002	ND	0.4	ug/l	5	0.4		81
956	Di-n-butyl	6/6/2002	ND	1	ug/l	5	1		81
957	Di-n-butyl	7/18/2002	ND	1	ug/l	5	1		81
958	Di-n-butyl	1/2/2003	ND	1	ug/l	5	1		81
959	Di-n-butyl	7/17/2003	ND	1	ug/l	5	1		81
960	Di-n-butyl	1/15/2004	ND	1	ug/l	5	1		81
961	2,4-Dinitr	1/3/2002	ND	0.3	ug/l	5	0.3		82
962	2,4-Dinitr	6/6/2002	ND	0.6	ug/l	5	0.6		82
963	2,4-Dinitr	7/18/2002	ND	0.6	ug/l	5	0.6		82
964	2,4-Dinitr	1/2/2003	ND	0.6	ug/l	5	0.6		82
965	2,4-Dinitr	7/17/2003	ND	0.6	ug/l	5	0.6		82
966	2,4-Dinitr	1/15/2004	ND	0.6	ug/l	5	0.6		82
967	2,6-Dntoluen	1/3/2002	ND	0.3	ug/l	5	0.3		83
968	2,6-Dntoluen	6/6/2002	ND	0.6	ug/l	5	0.6		83
969	2,6-Dntoluen	7/18/2002	ND	0.6	ug/l	5	0.6		83
970	2,6-Dntoluen	1/2/2003	ND	0.6	ug/l	5	0.6		83
971	2,6-Dntoluen	7/17/2003	ND	0.6	ug/l	5	0.6		83
972	2,6-Dntoluen	1/15/2004	ND	0.6	ug/l	5	0.6		83
973	DI-N-Octpht	1/3/2002	ND	0.4	ug/l	5	0.4		84
974	DI-N-Octpht	6/6/2002	ND	0.9	ug/l	5	0.9		84
975	DI-N-Octpht	7/18/2002	ND	0.9	ug/l	5	0.9		84
976	DI-N-Octpht	1/2/2003	ND	0.9	ug/l	5	0.9		84
977	DI-N-Octpht	7/17/2003	ND	0.9	ug/l	5	0.9		84
978	DI-N-Octpht	1/15/2004	ND	0.9	ug/l	5	0.9		84
979	1,2-Diphen	1/3/2002	ND	0.3	ug/l	1	0.3		85
980	1,2-Diphen	6/6/2002	ND	0.6	ug/l	1	0.6		85
981	1,2-Diphen	7/18/2002	ND	0.6	ug/l	1	0.6		85
982	1,2-Diphen	1/2/2003	ND	0.6	ug/l	1	0.6		85
983	1,2-Diphen	7/17/2003	ND	0.6	ug/l	1	0.6		85
984	1,2-Diphen	1/15/2004	ND	0.6	ug/l	1	0.6		85
985	Fluoranthe	1/3/2002	ND	0.03	ug/l	0.05	0.03		86
986	Fluoranthe	6/6/2002	ND	0.03	ug/l	0.05	0.03		86
987	Fluoranthe	11/7/2002	ND	0.03	ug/l	0.05	0.03		86
988	Fluoranthe	1/2/2003	ND	0.03	ug/l	0.05	0.03		86
989	Fluoranthe	7/17/2003	ND	0.03	ug/l	0.05	0.03		86
990	Fluoranthe	1/15/2004	ND	0.03	ug/l	0.05	0.03		86
991	FLUORENE	1/3/2002	ND	0.02	ug/l	0.1	0.02		87
992	FLUORENE	6/6/2002	ND	0.02	ug/l	0.1	0.02		87
993	FLUORENE	11/7/2002	ND	0.02	ug/l	0.1	0.02		87
994	FLUORENE	1/2/2003	ND	0.02	ug/l	0.1	0.02		87
995	FLUORENE	7/17/2003	ND	0.02	ug/l	0.1	0.02		87
996	FLUORENE	1/15/2004	ND	0.02	ug/l	0.1	0.02		87
997	HCB	1/3/2002	ND	0.4	ug/l	1	0.4		88
998	HCB	6/6/2002	ND	0.4	ug/l	1	0.4		88
999	HCB	7/18/2002	ND	0.4	ug/l	1	0.4		88
1000	HCB	1/2/2003	ND	0.4	ug/l	1	0.4		88
1001	HCB	7/17/2003	ND	0.4	ug/l	1	0.4		88
1002	HCB	1/15/2004	ND	0.4	ug/l	1	0.4		88
1003	HBU	1/3/2002	ND	0.2	ug/l	1	0.2		89
1004	HBU	6/6/2002	ND	0.7	ug/l	1	0.7		89
1005	HBU	7/18/2002	ND	0.7	ug/l	1	0.7		89
1006	HBU	1/2/2003	ND	0.7	ug/l	1	0.7		89
1007	HBU	7/17/2003	ND	0.7	ug/l	1	0.7		89
1008	HBU	1/15/2004	ND	0.7	ug/l	1	0.7		89
1009	HCP	1/3/2002	ND	0.1	ug/l	5	0.1		90

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NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
381	Nickel	4/11/2002		5.9	ug/l	0.5	0.2		9
382	Nickel	4/8/2004		5.9	ug/l	0.5	0.2		9
383	Nickel	4/11/2002		5.9	ug/l	0.5	0.2		9
384	Nickel	4/8/2004		5.9	ug/l	0.5	0.2		9
385	Nickel	6/5/2003		6.1	ug/l	0.5	0.2		9
386	Nickel	6/5/2003		6.1	ug/l	0.5	0.2		9
387	Nickel	10/9/2003		6.2	ug/l	0.5	0.2		9
388	Nickel	10/9/2003		6.2	ug/l	0.5	0.2		9
389	Nickel	5/5/2005		6.2	ug/l				9
390	Nickel	5/9/2002		6.5	ug/l	0.5	0.2		9
391	Nickel	5/9/2002		6.5	ug/l	0.5	0.2		9
392	Nickel	9/9/2004		6.6	ug/l				9
393	Nickel	6/6/2002		6.7	ug/l	0.5	0.2		9
394	Nickel	6/6/2002		6.7	ug/l	0.5	0.2		9
395	Nickel	8/12/2004		6.7	ug/l				9
396	Nickel	7/31/2003		6.8	ug/l	0.5	0.2		9
397	Nickel	7/31/2003		6.8	ug/l	0.5	0.2		9
398	Nickel	10/10/2002		7	ug/l	1	0.2		9
399	Nickel	10/10/2002		7	ug/l	1	0.2		9
400	Nickel	7/1/2004		7.3	ug/l	0.5	0.2		9
401	Nickel	7/1/2004		7.3	ug/l	0.5	0.2		9
402	Nickel	2/13/2003		7.6	ug/l	0.5	0.2		9
403	Nickel	2/13/2003		7.6	ug/l	0.5	0.2		9
404	Nickel	7/4/2002		8	ug/l	0.5	0.2		9
405	Nickel	7/4/2002		8	ug/l	0.5	0.2		9
406	Nickel	11/7/2003		8.1	ug/l	0.5	0.2		9
407	Nickel	11/7/2003		8.1	ug/l	0.5	0.2		9
408	Nickel	8/1/2002		8.6	ug/l	0.5	0.2		9
409	Nickel	8/1/2002		8.6	ug/l	0.5	0.2		9
410	Nickel	12/4/2003		8.7	ug/l	0.5	0.2		9
411	Nickel	12/4/2003		8.7	ug/l	0.5	0.2		9
412	Nickel	9/12/2002		9	ug/l	1	0.2		9
413	Nickel	9/12/2002		9	ug/l	1	0.2		9
414	Nickel	8/28/2003		9.4	ug/l	0.5	0.2		9
415	Nickel	8/28/2003		9.4	ug/l	0.5	0.2		9
416	Nickel	9/11/2003		9.6	ug/l	0.5	0.2		9
417	Nickel	9/11/2003		9.6	ug/l	0.5	0.2		9
418	Nickel	9/23/2003		13	ug/l				9
419	Selenium	3/15/2002	ND	0.5	ug/l	1	0.5		10
420	Selenium	4/11/2002	ND	0.5	ug/l	1	0.5		10
421	Selenium	6/6/2002	ND	0.5	ug/l	1	0.5		10
422	Selenium	8/1/2002	ND	0.5	ug/l	1	0.5		10
423	Selenium	9/12/2002	ND	0.5	ug/l	4	0.5		10
424	Selenium	10/10/2002	ND	0.5	ug/l	4	0.5		10
425	Selenium	11/7/2002	ND	0.5	ug/l	2	0.5		10
426	Selenium	1/2/2003	ND	0.5	ug/l	2	0.5		10
427	Selenium	4/10/2003	ND	0.5	ug/l	2	0.5		10
428	Selenium	5/9/2003	ND	0.5	ug/l	2	0.5		10
429	Selenium	6/5/2003	ND	0.5	ug/l	2	0.5		10
430	Selenium	7/31/2003	ND	0.5	ug/l	2	0.5		10
431	Selenium	8/28/2003	ND	0.5	ug/l	2	0.5		10
432	Selenium	9/11/2003	ND	0.5	ug/l	2	0.5		10
433	Selenium	10/9/2003	ND	0.5	ug/l	2	0.5		10
434	Selenium	12/4/2003	ND	0.5	ug/l	2	0.5		10
435	Selenium	1/2/2004	ND	0.5	ug/l	2	0.5		10

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1010	HCP	6/6/2002	ND	0.4	ug/l	5	0.4		90
1011	HCP	7/18/2002	ND	0.4	ug/l	5	0.4		90
1012	HCP	1/2/2003	ND	0.4	ug/l	5	0.4		90
1013	HCP	7/17/2003	ND	0.4	ug/l	5	0.4		90
1014	HCP	1/15/2004	ND	0.4	ug/l	5	0.4		90
1015	HBE	1/3/2002	ND	0.2	ug/l	1	0.2		91
1016	HBE	6/6/2002	ND	0.6	ug/l	1	0.6		91
1017	HBE	7/18/2002	ND	0.6	ug/l	1	0.6		91
1018	HBE	1/2/2003	ND	0.6	ug/l	1	0.6		91
1019	HBE	7/17/2003	ND	0.6	ug/l	1	0.6		91
1020	HBE	1/15/2004	ND	0.6	ug/l	1	0.6		91
1021	INDENO PYREN	1/3/2002	ND	0.04	ug/l	0.05	0.04		92
1022	INDENO PYREN	6/6/2002	ND	0.04	ug/l	0.05	0.04		92
1023	INDENO PYREN	11/7/2002	ND	0.04	ug/l	0.05	0.04		92
1024	INDENO PYREN	1/2/2003	ND	0.04	ug/l	0.05	0.04		92
1025	INDENO PYREN	7/17/2003	ND	0.04	ug/l	0.05	0.04		92
1026	INDENO PYREN	1/15/2004	ND	0.04	ug/l	0.05	0.04		92
1027	Isophorone	1/3/2002	ND	0.3	ug/l	1	0.3		93
1028	Isophorone	6/6/2002	ND	0.8	ug/l	1	0.8		93
1029	Isophorone	7/18/2002	ND	0.8	ug/l	1	0.8		93
1030	Isophorone	1/2/2003	ND	0.8	ug/l	1	0.8		93
1031	Isophorone	7/17/2003	ND	0.8	ug/l	1	0.8		93
1032	Isophorone	1/15/2004	ND	0.8	ug/l	1	0.8		93
1033	Naphthalene	1/3/2002	ND	0.05	ug/l	0.2	0.05		94
1034	Naphthalene	6/6/2002	ND	0.05	ug/l	0.2	0.05		94
1035	Naphthalene	11/7/2002	ND	0.05	ug/l	0.2	0.05		94
1036	Naphthalene	1/2/2003	ND	0.05	ug/l	0.2	0.05		94
1037	Naphthalene	7/17/2003	ND	0.05	ug/l	0.2	0.05		94
1038	Naphthalene	1/15/2004	ND	0.05	ug/l	0.2	0.05		94
1039	Nitrobenzene	1/3/2002	ND	0.3	ug/l	1	0.3		95
1040	Nitrobenzene	6/6/2002	ND	0.7	ug/l	1	0.7		95
1041	Nitrobenzene	7/18/2002	ND	0.7	ug/l	1	0.7		95
1042	Nitrobenzene	1/2/2003	ND	0.7	ug/l	1	0.7		95
1043	Nitrobenzene	7/17/2003	ND	0.7	ug/l	1	0.7		95
1044	Nitrobenzene	1/15/2004	ND	0.7	ug/l	1	0.7		95
1045	NME	1/3/2002	ND	0.4	ug/l	5	0.4		96
1046	NME	6/6/2002	ND	0.6	ug/l	5	0.6		96
1047	NME	7/18/2002	ND	0.6	ug/l	5	0.6		96
1048	NME	1/2/2003	ND	0.6	ug/l	5	0.6		96
1049	NME	7/17/2003	ND	0.6	ug/l	5	0.6		96
1050	NME	1/15/2004	ND	0.6	ug/l	5	0.6		96
1051	N-nitrodpra	1/3/2002	ND	0.3	ug/l	5	0.3		97
1052	N-nitrodpra	6/6/2002	ND	0.8	ug/l	5	0.8		97
1053	N-nitrodpra	7/18/2002	ND	0.8	ug/l	5	0.8		97
1054	N-nitrodpra	1/2/2003	ND	0.8	ug/l	5	0.8		97
1055	N-nitrodpra	7/17/2003	ND	0.8	ug/l	5	0.8		97
1056	N-nitrodpra	1/15/2004	ND	0.8	ug/l	5	0.8		97
1057	NPH	1/3/2002	ND	0.4	ug/l	1	0.4		98
1058	NPH	6/6/2002	ND	0.7	ug/l	1	0.7		98
1059	NPH	7/18/2002	ND	0.7	ug/l	1	0.7		98
1060	NPH	1/2/2003	ND	0.7	ug/l	1	0.7		98
1061	NPH	7/17/2003	ND	0.7	ug/l	1	0.7		98
1062	NPH	1/15/2004	ND	0.7	ug/l	1	0.7		98
1063	Phenanthrene	1/3/2002	ND	0.03	ug/l	0.05	0.03		99
1064	Phenanthrene	6/6/2002	ND	0.03	ug/l	0.05	0.03		99

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NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
436	Selenium	1/15/2004	ND	0.5	ug/l	2	0.5		10
437	Selenium	2/12/2004	ND	0.5	ug/l	2	0.5		10
438	Selenium	3/11/2004	ND	0.5	ug/l	2	0.5		10
439	Selenium	4/8/2004	ND	0.5	ug/l	2	0.5		10
440	Selenium	6/3/2004	ND	0.5	ug/l	2	0.5		10
441	Selenium	7/1/2004	ND	0.5	ug/l	2	0.5		10
442	Selenium	7/17/2003	J	0.5	ug/l	2	0.5		10
443	Selenium	5/9/2002	J	0.56	ug/l	2	0.5		10
444	Selenium	7/4/2002	J	0.9	ug/l	1	0.5		10
445	Selenium	2/13/2003	J	0.99	ug/l	1	0.5		10
446	Selenium	12/5/2002	J	1.5	ug/l	2	0.5		10
447	Selenium	11/7/2003	J	1.6	ug/l	2	0.5		10
448	Selenium	2/14/2002		2	ug/l	1	0.3		10
449	Silver	2/14/2002	ND	0.02	ug/l	0.1	0.02		11
450	Silver	3/15/2002	ND	0.02	ug/l	0.1	0.02		11
451	Silver	5/9/2002	ND	0.02	ug/l	0.1	0.02		11
452	Silver	6/6/2002	ND	0.02	ug/l	0.2	0.02		11
453	Silver	7/4/2002	ND	0.02	ug/l	0.1	0.02		11
454	Silver	8/1/2002	ND	0.02	ug/l	0.1	0.02		11
455	Silver	9/12/2002	ND	0.02	ug/l	0.2	0.02		11
456	Silver	10/10/2002	ND	0.02	ug/l	0.2	0.02		11
457	Silver	11/7/2002	ND	0.02	ug/l	0.1	0.02		11
458	Silver	12/5/2002	ND	0.02	ug/l	0.1	0.02		11
459	Silver	1/2/2003	ND	0.02	ug/l	0.1	0.02		11
460	Silver	2/13/2003	ND	0.02	ug/l	0.1	0.02		11
461	Silver	4/10/2003	ND	0.02	ug/l	0.1	0.02		11
462	Silver	5/9/2003	ND	0.02	ug/l	0.1	0.02		11
463	Silver	6/5/2003	ND	0.02	ug/l	0.1	0.02		11
464	Silver	7/17/2003	ND	0.02	ug/l	0.1	0.02		11
465	Silver	7/31/2003	ND	0.02	ug/l	0.1	0.02		11
466	Silver	8/28/2003	ND	0.02	ug/l	0.1	0.02		11
467	Silver	9/11/2003	ND	0.02	ug/l	0.1	0.02		11
468	Silver	10/9/2003	ND	0.02	ug/l	0.1	0.02		11
469	Silver	11/7/2003	ND	0.02	ug/l	0.1	0.02		11
470	Silver	12/4/2003	ND	0.02	ug/l	0.1	0.02		11
471	Silver	1/2/2004	ND	0.02	ug/l	0.1	0.02		11
472	Silver	1/15/2004	ND	0.02	ug/l	0.1	0.02		11
473	Silver	2/12/2004	ND	0.02	ug/l	0.1	0.02		11
474	Silver	3/11/2004	ND	0.02	ug/l	0.1	0.02		11
475	Silver	4/8/2004	ND	0.02	ug/l	0.1	0.02		11
476	Silver	6/3/2004	ND	0.02	ug/l	0.1	0.02		11
477	Silver	7/1/2004	ND	0.02	ug/l	0.1	0.02		11
478	Silver	4/11/2002	J	0.2	ug/l	0.25	0.02		11
479	Thallium	02/14/2002	ND	0.03	ug/L	0.1	0.03		12
480	Thallium	03/15/2002	ND	0.03	ug/L	0.1	0.03		12
481	Thallium	05/09/2002	ND	0.03	ug/L	0.1	0.03		12
482	Thallium	06/06/2002	ND	0.03	ug/L	0.2	0.03		12
483	Thallium	07/04/2002	ND	0.03	ug/L	0.1	0.03		12
484	Thallium	08/01/2002	ND	0.03	ug/L	0.1	0.03		12
485	Thallium	09/12/2002	ND	0.03	ug/L	0.2	0.03		12
486	Thallium	10/10/2002	ND	0.03	ug/L	0.1	0.03		12
487	Thallium	11/07/2002	ND	0.03	ug/L	0.1	0.03		12
488	Thallium	01/02/2003	ND	0.03	ug/L	0.1	0.03		12

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1065	Phenanthrene	11/7/2002	ND	0.03	ug/l	0.05	0.03		99
1066	Phenanthrene	1/2/2003	ND	0.03	ug/l	0.05	0.03		99
1067	Phenanthrene	7/17/2003	ND	0.03	ug/l	0.05	0.03		99
1068	Phenanthrene	1/15/2004	ND	0.03	ug/l	0.05	0.03		99
1069	Pyrene	1/3/2002	ND	0.03	ug/l	0.05	0.03		100
1070	Pyrene	6/6/2002	ND	0.03	ug/l	0.05	0.03		100
1071	Pyrene	11/7/2002	ND	0.03	ug/l	0.05	0.03		100
1072	Pyrene	1/2/2003	ND	0.03	ug/l	0.05	0.03		100
1073	Pyrene	7/17/2003	ND	0.03	ug/l	0.05	0.03		100
1074	Pyrene	1/15/2004	ND	0.03	ug/l	0.05	0.03		100
1075	1,2,4-Tcbenz	1/3/2002	ND	0.3	ug/l	5	0.3		101
1076	1,2,4-Tcbenz	6/6/2002	ND	0.6	ug/l	5	0.6		101
1077	1,2,4-Tcbenz	7/18/2002	ND	0.6	ug/l	5	0.6		101
1078	1,2,4-Tcbenz	1/2/2003	ND	0.6	ug/l	5	0.6		101
1079	1,2,4-Tcbenz	7/17/2003	ND	0.6	ug/l	5	0.6		101
1080	1,2,4-Tcbenz	1/15/2004	ND	0.6	ug/l	5	0.6		101
1081	Aldrin	1/3/2002	ND	0.003	ug/l	0.005	0.003		102
1082	Aldrin	6/6/2002	ND	0.003	ug/l	0.005	0.003		102
1083	Aldrin	11/7/2002	ND	0.003	ug/l	0.005	0.003		102
1084	Aldrin	1/2/2003	ND	0.003	ug/l	0.005	0.003		102
1085	Aldrin	7/17/2003	ND	0.003	ug/l	0.005	0.003		102
1086	Aldrin	1/15/2004	ND	0.003	ug/l	0.005	0.003		102
1087	A-BHC	1/3/2002	ND	0.002	ug/l	0.01	0.002		103
1088	A-BHC	6/6/2002	ND	0.003	ug/l	0.01	0.003		103
1089	A-BHC	11/7/2002	ND	0.003	ug/l	0.01	0.003		103
1090	A-BHC	1/2/2003	ND	0.003	ug/l	0.01	0.003		103
1091	A-BHC	7/17/2003	ND	0.003	ug/l	0.01	0.003		103
1092	A-BHC	1/15/2004	ND	0.003	ug/l	0.01	0.003		103
1093	B-BHC	1/3/2002	ND	0.001	ug/l	0.005	0.001		104
1094	B-BHC	6/6/2002	ND	0.004	ug/l	0.005	0.004		104
1095	B-BHC	11/7/2002	ND	0.004	ug/l	0.005	0.004		104
1096	B-BHC	1/2/2003	ND	0.004	ug/l	0.005	0.004		104
1097	B-BHC	7/17/2003	ND	0.004	ug/l	0.005	0.004		104
1098	B-BHC	1/15/2004	ND	0.004	ug/l	0.005	0.004		104
1099	G-BHC	1/3/2002	ND	0.001	ug/l	0.01	0.001		105
1100	G-BHC	6/6/2002	ND	0.003	ug/l	0.01	0.003		105
1101	G-BHC	11/7/2002	ND	0.003	ug/l	0.01	0.003		105
1102	G-BHC	1/2/2003	ND	0.003	ug/l	0.01	0.003		105
1103	G-BHC	7/17/2003	ND	0.003	ug/l	0.01	0.003		105
1104	G-BHC	1/15/2004	ND	0.003	ug/l	0.01	0.003		105
1105	Delta-BHC	1/3/2002	ND	0.001	ug/l	0.005	0.001		106
1106	Delta-BHC	6/6/2002	ND	0.002	ug/l	0.005	0.002		106
1107	Delta-BHC	11/7/2002	ND	0.002	ug/l	0.005	0.002		106
1108	Delta-BHC	1/2/2003	ND	0.002	ug/l	0.005	0.002		106
1109	Delta-BHC	7/17/2003	ND	0.002	ug/l	0.005	0.002		106
1110	Delta-BHC	1/15/2004	ND	0.002	ug/l	0.005	0.002		106
1111	Chlordane	1/3/2002	ND	0.005	ug/l	0.02	0.005		107
1112	Chlordane	6/6/2002	ND	0.005	ug/l	0.02	0.005		107
1113	Chlordane	11/7/2002	ND	0.005	ug/l	0.02	0.005		107
1114	Chlordane	1/2/2003	ND	0.005	ug/l	0.02	0.005		107
1115	Chlordane	7/17/2003	ND	0.005	ug/l	0.02	0.005		107
1116	Chlordane	1/15/2004	ND	0.005	ug/l	0.02	0.005		107
1117	4,4'-DDD	1/3/2002	ND	0.001	ug/l	0.01	0.001		108

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NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
489	Thallium	04/10/2003	ND	0.03	ug/L	0.1	0.03		12
490	Thallium	05/09/2003	ND	0.03	ug/L	0.1	0.03		12
491	Thallium	06/05/2003	ND	0.03	ug/L	0.1	0.03		12
492	Thallium	07/17/2003	ND	0.03	ug/L	0.1	0.03		12
493	Thallium	07/31/2003	ND	0.03	ug/L	0.1	0.03		12
494	Thallium	08/28/2003	ND	0.03	ug/L	0.1	0.03		12
495	Thallium	09/11/2003	ND	0.03	ug/L	0.1	0.03		12
496	Thallium	10/09/2003	ND	0.03	ug/L	0.1	0.03		12
497	Thallium	11/07/2003	ND	0.03	ug/L	0.1	0.03		12
498	Thallium	12/04/2003	ND	0.03	ug/L	0.1	0.03		12
499	Thallium	01/02/2004	ND	0.03	ug/L	0.1	0.03		12
500	Thallium	01/15/2004	ND	0.03	ug/L	0.1	0.03		12
501	Thallium	02/12/2004	ND	0.03	ug/L	0.1	0.03		12
502	Thallium	03/11/2004	ND	0.03	ug/L	0.1	0.03		12
503	Thallium	04/08/2004	ND	0.03	ug/L	0.1	0.03		12
504	Thallium	07/01/2004	ND	0.03	ug/L	0.1	0.03		12
505	Thallium	02/13/2003	J	0.05	ug/L	0.1	0.03		12
506	Thallium	06/03/2004	J	0.08	ug/L	0.1	0.03		12
507	Thallium	12/05/2002	J	0.09	ug/L	0.1	0.03		12
508	Thallium	04/11/2002	J	0.095	ug/L	0.1	0.03		12
509	Zinc	4/10/2003	ND	0.5	ug/l	10	0.5		13
510	Zinc	6/5/2003	ND	0.5	ug/l	10	0.5		13
511	Zinc	7/31/2003	ND	0.5	ug/l	10	0.5		13
512	Zinc	12/4/2003	ND	0.5	ug/l	10	0.5		13
513	Zinc	4/8/2004	ND	0.5	ug/l	10	0.5		13
514	Zinc	9/12/2002	J	7	ug/l	10	0.5		13
515	Zinc	8/28/2003	J	7	ug/l	10	0.5		13
516	Zinc	5/9/2002	J	7.3	ug/l	10	0.5		13
517	Zinc	12/5/2002	J	8	ug/l	10	0.5		13
518	Zinc	7/1/2004	J	8	ug/l	10	0.5		13
519	Zinc	10/10/2002	J	9	ug/l	20	0.5		13
520	Zinc	2/13/2003		6	ug/l	2	0.3		13
521	Zinc	6/3/2004		6	ug/l	2	0.5		13
522	Zinc	4/11/2002		7	ug/l	2	0.5		13
523	Zinc	2/14/2002		8	ug/l	1	0.5		13
524	Zinc	3/15/2002		8	ug/l	1	0.5		13
525	Zinc	7/4/2002		8	ug/l	1	0.3		13
526	Zinc	7/17/2003		9	ug/l	2	0.5		13
527	Zinc	8/1/2002		10	ug/l	1	0.3		13
528	Zinc	1/2/2003		10	ug/l	10	0.5		13
529	Zinc	9/11/2003		10	ug/l	10	0.5		13
530	Zinc	1/2/2004		10	ug/l	10	0.5		13
531	Zinc	1/15/2004		10	ug/l	10	0.5		13
532	Zinc	2/12/2004		10	ug/l	10	0.5		13
533	Zinc	3/11/2004		10	ug/l	10	0.5		13
534	Zinc	6/6/2002		11	ug/l	2	0.3		13
535	Zinc	11/7/2002		20	ug/l	10	0.5		13
536	Zinc	5/9/2003		20	ug/l	10	0.5		13
537	Zinc	11/7/2003		20	ug/l	10	0.5		13
538	Zinc	10/9/2003		30	ug/l	10	0.5		13
539	Cyanide	6/5/2003	ND	0.9	ug/l	3	3		14
540	Cyanide	11/6/2003	ND	0.9	ug/l	3	3		14

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1118	4,4'-DDD	6/6/2002	ND	0.002	ug/l	0.01	0.002		108
1119	4,4'-DDD	11/7/2002	ND	0.002	ug/l	0.01	0.002		108
1120	4,4'-DDD	1/2/2003	ND	0.002	ug/l	0.01	0.002		108
1121	4,4'-DDD	7/17/2003	ND	0.002	ug/l	0.01	0.002		108
1122	4,4'-DDD	1/15/2004	ND	0.002	ug/l	0.01	0.002		108
1123	4,4'-DDE	1/3/2002	ND	0.001	ug/l	0.01	0.001		109
1124	4,4'-DDE	6/6/2002	ND	0.002	ug/l	0.01	0.002		109
1125	4,4'-DDE	11/7/2002	ND	0.002	ug/l	0.01	0.002		109
1126	4,4'-DDE	1/2/2003	ND	0.002	ug/l	0.01	0.002		109
1127	4,4'-DDE	7/17/2003	ND	0.002	ug/l	0.01	0.002		109
1128	4,4'-DDE	1/15/2004	ND	0.002	ug/l	0.01	0.002		109
1129	4,4'-DDT	1/3/2002	ND	0.001	ug/l	0.01	0.001		110
1130	4,4'-DDT	6/6/2002	ND	0.003	ug/l	0.01	0.003		110
1131	4,4'-DDT	11/7/2002	ND	0.003	ug/l	0.01	0.003		110
1132	4,4'-DDT	1/2/2003	ND	0.003	ug/l	0.01	0.003		110
1133	4,4'-DDT	7/17/2003	ND	0.003	ug/l	0.01	0.003		110
1134	4,4'-DDT	1/15/2004	ND	0.003	ug/l	0.01	0.003		110
1135	Dieldrin	1/3/2002	ND	0.002	ug/l	0.01	0.002		111
1136	Dieldrin	6/6/2002	ND	0.002	ug/l	0.01	0.002		111
1137	Dieldrin	11/7/2002	ND	0.002	ug/l	0.01	0.002		111
1138	Dieldrin	1/2/2003	ND	0.002	ug/l	0.01	0.002		111
1139	Dieldrin	7/17/2003	ND	0.002	ug/l	0.01	0.002		111
1140	Dieldrin	1/15/2004	ND	0.002	ug/l	0.01	0.002		111
1141	Endosulfan-A	6/6/2002	ND	0.002	ug/l	0.01	0.002		112
1142	Endosulfan-A	11/7/2002	ND	0.002	ug/l	0.01	0.002		112
1143	Endosulfan-A	1/2/2003	ND	0.002	ug/l	0.01	0.002		112
1144	Endosulfan-A	7/17/2003	ND	0.002	ug/l	0.01	0.002		112
1145	Endosulfan-A	1/15/2004	ND	0.002	ug/l	0.01	0.002		112
1146	Endosulfan-A	1/3/2002	ND	0.003	ug/l	0.01	0.003		112
1147	Endosulfan-B	1/3/2002	ND	0.001	ug/l	0.01	0.001		113
1148	Endosulfan-B	6/6/2002	ND	0.002	ug/l	0.01	0.002		113
1149	Endosulfan-B	11/7/2002	ND	0.002	ug/l	0.01	0.002		113
1150	Endosulfan-B	1/2/2003	ND	0.002	ug/l	0.01	0.002		113
1151	Endosulfan-B	7/17/2003	ND	0.002	ug/l	0.01	0.002		113
1152	Endosulfan-B	1/15/2004	ND	0.002	ug/l	0.01	0.002		113
1153	Endosulf SO4	1/3/2002	ND	0.001	ug/l	0.01	0.001		114
1154	Endosulf SO4	6/6/2002	ND	0.002	ug/l	0.01	0.002		114
1155	Endosulf SO4	11/7/2002	ND	0.002	ug/l	0.01	0.002		114
1156	Endosulf SO4	1/2/2003	ND	0.002	ug/l	0.01	0.002		114
1157	Endosulf SO4	7/17/2003	ND	0.002	ug/l	0.01	0.002		114
1158	Endosulf SO4	1/15/2004	ND	0.002	ug/l	0.01	0.002		114
1159	Endrin	1/3/2002	ND	0.002	ug/l	0.01	0.002		115
1160	Endrin	6/6/2002	ND	0.002	ug/l	0.01	0.002		115
1161	Endrin	11/7/2002	ND	0.002	ug/l	0.01	0.002		115
1162	Endrin	1/2/2003	ND	0.002	ug/l	0.01	0.002		115
1163	Endrin	7/17/2003	ND	0.002	ug/l	0.01	0.002		115
1164	Endrin	1/15/2004	ND	0.002	ug/l	0.01	0.002		115
1165	Endrin Aldeh	1/3/2002	ND	0.002	ug/l	0.01	0.002		116
1166	Endrin Aldeh	6/6/2002	ND	0.002	ug/l	0.01	0.002		116
1167	Endrin Aldeh	11/7/2002	ND	0.002	ug/l	0.01	0.002		116
1168	Endrin Aldeh	1/2/2003	ND	0.002	ug/l	0.01	0.002		116
1169	Endrin Aldeh	7/17/2003	ND	0.002	ug/l	0.01	0.002		116

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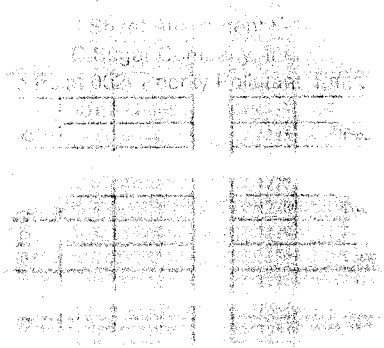
NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
541	Cyanide	9/11/2003	ND	0.9	ug/l	3	0.9		14
542	Cyanide	6/3/2004	ND	0.9	ug/l	3	0.9		14
543	Cyanide	7/1/2004	ND	0.9	ug/l	3	0.9		14
544	Cyanide	2/13/2003	J	1	ug/l	3	0.9		14
545	Cyanide	12/5/2002	J	1.3	ug/l	3	0.9		14
546	Cyanide	12/4/2003	J	1.9	ug/l	3	0.9		14
547	Cyanide	8/1/2002		0.004	ug/l	0.003	0.0008		14
548	Cyanide	5/9/2002		0.012	ug/l	0.003	0.0006		14
549	Cyanide	6/6/2002		0.012	ug/l	0.003	0.0006		14
550	Cyanide	10/10/2002		0.013	ug/l	0.003	0.0009		14
551	Cyanide	1/2/2003		3	ug/l	3	0.9		14
552	Cyanide	8/14/2003		3	ug/l	3	0.9		14
553	Cyanide	4/11/2002		4	ug/l	3	0.6		14
554	Cyanide	10/9/2003		4	ug/l	3	0.9		14
555	Cyanide	5/6/2004		4	ug/l	3	0.9		14
556	Cyanide	5/8/2003		5	ug/l	3	0.9		14
557	Cyanide	7/17/2003		5	ug/l	3	0.9		14
558	Cyanide	1/3/2002		8	ug/l	3	0.6		14
559	Cyanide	7/18/2002		8	ug/l	3	1.4		14
560	Cyanide	11/7/2002		8	ug/l	3	0.9		14
561	Cyanide	2/12/2004		8	ug/l	3	0.9		14
562	Cyanide	3/11/2004		9	ug/l	3	0.9		14
563	Cyanide	3/13/2003		10	ug/l	3	0.9		14
564	Cyanide	4/10/2003		10	ug/l	3	0.9		14
565	Cyanide	2/14/2002		11	ug/l	3	0.6		14
566	Cyanide	1/15/2004		11	ug/l	3	0.9		14
567	Cyanide	4/8/2004		12	ug/l	3	0.9		14
568	Cyanide	9/12/2002		19	ug/l	3	0.9		14
569	Dioxin								16
570	Acrolein	6/6/2002	ND	1	ug/l	10	1		17
571	Acrolein	7/18/2002	ND	1	ug/l	10	1		17
572	Acrolein	1/2/2003	ND	1	ug/l	5	1		17
573	Acrolein	7/17/2003	ND	1	ug/l	5	1		17
574	Acrolein	1/15/2004	ND	1	ug/l	5	1		17
575	Acrolein	1/3/2002	ND	3.3	ug/l	5	3.3		17
576	Acrylonitr	6/6/2002	ND	1	ug/l	10	1		18
577	Acrylonitr	7/18/2002	ND	1	ug/l	10	1		18
578	Acrylonitr	1/2/2003	ND	1	ug/l	2	1		18
579	Acrylonitr	7/17/2003	ND	1	ug/l	2	1		18
580	Acrylonitr	1/15/2004	ND	1	ug/l	2	1		18
581	Acrylonitr	1/3/2002	ND	1.6	ug/l	2	1.6		18
582	Benzene	1/3/2002	ND	0.27	ug/l	0.5	0.27		19
583	Benzene	6/6/2002	ND	0.3	ug/l	1	0.3		19
584	Benzene	7/18/2002	ND	0.3	ug/l	1	0.3		19
585	Benzene	1/2/2003	ND	0.3	ug/l	0.5	0.3		19
586	Benzene	7/17/2003	ND	0.3	ug/l	0.5	0.3		19
587	Benzene	1/15/2004	ND	0.3	ug/l	0.5	0.3		19
588	Bromoform	6/6/2002	ND	0.2	ug/l	1	0.2		20
589	Bromoform	7/18/2002	ND	0.2	ug/l	1	0.2		20
590	Bromoform	1/2/2003	ND	0.2	ug/l	0.5	0.2		20
591	Bromoform	7/17/2003	ND	0.2	ug/l	0.5	0.2		20
592	Bromoform	1/15/2004	ND	0.2	ug/l	0.5	0.2		20
593	Bromoform	1/3/2002		0.9	ug/l	0.5	0.1		20
594	Carbon tet	1/3/2002	ND	0.42	ug/l	0.5	0.42		21
595	Carbon tet	6/6/2002	ND	0.42	ug/l	1	0.42		21

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1170	Endrin Aldeh	1/15/2004	ND	0.002	ug/l	0.01	0.002		116
1171	Heptachlor	1/3/2002	ND	0.003	ug/l	0.01	0.003		117
1172	Heptachlor	6/6/2002	ND	0.003	ug/l	0.01	0.003		117
1173	Heptachlor	11/7/2002	ND	0.003	ug/l	0.01	0.003		117
1174	Heptachlor	1/2/2003	ND	0.003	ug/l	0.01	0.003		117
1175	Heptachlor	7/17/2003	ND	0.003	ug/l	0.01	0.003		117
1176	Heptachlor	1/15/2004	ND	0.003	ug/l	0.01	0.003		117
1177	Heptchl	1/3/2002	ND	0.002	ug/l	0.01	0.002		118
1178	Heptchl	6/6/2002	ND	0.003	ug/l	0.01	0.003		118
1179	Heptchl	11/7/2002	ND	0.003	ug/l	0.01	0.003		118
1180	Heptchl	1/2/2003	ND	0.003	ug/l	0.01	0.003		118
1181	Heptchl	7/17/2003	ND	0.003	ug/l	0.01	0.003		118
1182	Heptchl	1/15/2004	ND	0.003	ug/l	0.01	0.003		118
1183	PCB-1016	6/6/2002	ND	0.05	ug/l	0.1	0.05		119
1184	PCB-1016	11/7/2002	ND	0.05	ug/l	0.1	0.05		119
1185	PCB-1016	1/2/2003	ND	0.05	ug/l	0.1	0.05		119
1186	PCB-1016	7/17/2003	ND	0.05	ug/l	0.1	0.05		119
1187	PCB-1016	1/15/2004	ND	0.05	ug/l	0.1	0.05		119
1188	PCB-1016	1/3/2002	ND	0.08	ug/l	0.1	0.08		119
1189	PCB-1221	1/3/2002	ND	0.03	ug/l	0.1	0.03		120
1190	PCB-1221	6/6/2002	ND	0.03	ug/l	0.1	0.03		120
1191	PCB-1221	11/7/2002	ND	0.03	ug/l	0.1	0.03		120
1192	PCB-1221	1/2/2003	ND	0.03	ug/l	0.1	0.03		120
1193	PCB-1221	7/17/2003	ND	0.03	ug/l	0.1	0.03		120
1194	PCB-1221	1/15/2004	ND	0.03	ug/l	0.1	0.03		120
1195	PCB-1232	1/3/2002	ND	0.04	ug/l	0.1	0.04		121
1196	PCB-1232	6/6/2002	ND	0.04	ug/l	0.1	0.04		121
1197	PCB-1232	11/7/2002	ND	0.04	ug/l	0.1	0.04		121
1198	PCB-1232	1/2/2003	ND	0.04	ug/l	0.1	0.04		121
1199	PCB-1232	7/17/2003	ND	0.04	ug/l	0.1	0.04		121
1200	PCB-1232	1/15/2004	ND	0.04	ug/l	0.1	0.04		121
1201	PCB-1242	6/6/2002	ND	0.05	ug/l	0.1	0.05		122
1202	PCB-1242	11/7/2002	ND	0.05	ug/l	0.1	0.05		122
1203	PCB-1242	1/2/2003	ND	0.05	ug/l	0.1	0.05		122
1204	PCB-1242	7/17/2003	ND	0.05	ug/l	0.1	0.05		122
1205	PCB-1242	1/15/2004	ND	0.05	ug/l	0.1	0.05		122
1206	PCB-1242	1/3/2002	ND	0.08	ug/l	0.1	0.08		122
1207	PCB-1248	1/3/2002	ND	0.05	ug/l	0.1	0.05		123
1208	PCB-1248	6/6/2002	ND	0.05	ug/l	0.1	0.05		123
1209	PCB-1248	11/7/2002	ND	0.05	ug/l	0.1	0.05		123
1210	PCB-1248	1/2/2003	ND	0.05	ug/l	0.1	0.05		123
1211	PCB-1248	7/17/2003	ND	0.05	ug/l	0.1	0.05		123
1212	PCB-1248	1/15/2004	ND	0.05	ug/l	0.1	0.05		123
1213	PCB-1254	1/3/2002	ND	0.05	ug/l	0.1	0.05		124
1214	PCB-1254	6/6/2002	ND	0.05	ug/l	0.1	0.05		124
1215	PCB-1254	11/7/2002	ND	0.05	ug/l	0.1	0.05		124
1216	PCB-1254	1/2/2003	ND	0.05	ug/l	0.1	0.05		124
1217	PCB-1254	7/17/2003	ND	0.05	ug/l	0.1	0.05		124
1218	PCB-1254	1/15/2004	ND	0.05	ug/l	0.1	0.05		124
1219	PCB-1260	1/3/2002	ND	0.07	ug/l	0.1	0.07		125
1220	PCB-1260	6/6/2002	ND	0.07	ug/l	0.1	0.07		125
1221	PCB-1260	11/7/2002	ND	0.07	ug/l	0.1	0.07		125
1222	PCB-1260	1/2/2003	ND	0.07	ug/l	0.1	0.07		125
1223	PCB-1260	7/17/2003	ND	0.07	ug/l	0.1	0.07		125
1224	PCB-1260	1/15/2004	ND	0.07	ug/l	0.1	0.07		125

Fact Sheet Attachment F-1(2)
C Sugar Company, Inc.
Discharge Point 002- Priority Pollutant Effluent Data

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
596	Carbon tet	7/18/2002	ND	0.42	ug/l	1	0.42		21
597	Carbon tet	1/2/2003	ND	0.42	ug/l	0.5	0.42		21
598	Carbon tet	7/17/2003	ND	0.42	ug/l	0.5	0.42		21
599	Carbon tet	1/15/2004	ND	0.42	ug/l	0.5	0.42		21
600	Chlorobenz	1/3/2002	ND	0.19	ug/l	0.5	0.19		22
601	Chlorobenz	6/6/2002	ND	0.3	ug/l	1	0.3		22
602	Chlorobenz	7/18/2002	ND	0.3	ug/l	1	0.3		22
603	Chlorobenz	1/2/2003	ND	0.3	ug/l	0.5	0.3		22
604	Chlorobenz	7/17/2003	ND	0.3	ug/l	0.5	0.3		22
605	Chlorobenz	1/15/2004	ND	0.3	ug/l	0.5	0.3		22
606	ClDibromthan	7/18/2002	ND	0.3	ug/l	1	0.3		23
607	ClDibromthan	6/6/2002	J	0.5	ug/l	1	0.3		23
608	ClDibromthan	7/17/2003		1.8	ug/l	0.5	0.3		23
609	ClDibromthan	1/2/2003		3.5	ug/l	0.5	0.3		23
610	ClDibromthan	1/15/2004		4.6	ug/l	0.5	0.3		23
611	ClDibromthan	1/3/2002		16	ug/l	0.5	0.18		23
612	Chloroethane	1/3/2002	ND	0.34	ug/l	0.5	0.34		24
613	Chloroethane	6/6/2002	ND	0.34	ug/l	1	0.34		24
614	Chloroethane	7/18/2002	ND	0.34	ug/l	1	0.34		24
615	Chloroethane	1/2/2003	ND	0.34	ug/l	0.5	0.34		24
616	Chloroethane	7/17/2003	ND	0.34	ug/l	0.5	0.34		24
617	Chloroethane	1/15/2004	ND	0.34	ug/l	0.5	0.34		24
618	2-CEV Ether	1/3/2002	ND	0.31	ug/l	1	0.31		25
619	2-CEV Ether	6/6/2002	ND	0.32	ug/l	1	0.32		25
620	2-CEV Ether	7/18/2002	ND	0.32	ug/l	1	0.32		25
621	2-CEV Ether	1/2/2003	ND	0.32	ug/l	1	0.32		25
622	2-CEV Ether	7/17/2003	ND	0.32	ug/l	1	0.32		25
623	2-CEV Ether	1/15/2004	ND	0.32	ug/l	1	0.32		25
624	Chloroform	1/3/2002		27	ug/l	0.5	0.24		26
625	Chloroform	1/2/2003		41	ug/l	0.5	0.31		26
626	Chloroform	1/15/2004		46	ug/l	2.5	0.31		26
627	Chloroform	7/18/2002		80	ug/l	1	0.31		26
628	Chloroform	7/17/2003		91	ug/l	1	0.31		26
629	Chloroform	6/6/2002		210	ug/l	10	0.31		26

NO.	Pollutant	Date	GTLT	Value	Unit	ML	MDL	RDL	CTR
1225	Toxaphene	1/3/2002	ND	0.2	ug/l	0.5	0.2		126
1226	Toxaphene	6/6/2002	ND	0.4	ug/l	0.5	0.4		126
1227	Toxaphene	11/7/2002	ND	0.4	ug/l	0.5	0.4		126
1228	Toxaphene	1/2/2003	ND	0.4	ug/l	0.5	0.4		126
1229	Toxaphene	7/17/2003	ND	0.4	ug/l	0.5	0.4		126
1230	Toxaphene	1/15/2004	ND	0.4	ug/l	0.5	0.4		126
1231	cis-1,3-DiClpe	6/6/2002	ND	0.2	ug/l	0.5	0.2		32-cis
1232	cis-1,3-DiClpe	7/18/2002	ND	0.2	ug/l	0.5	0.2		32-cis
1233	cis-1,3-DiClpe	1/2/2003	ND	0.2	ug/l	0.5	0.2		32-cis
1234	cis-1,3-DiClpe	7/17/2003	ND	0.2	ug/l	0.5	0.2		32-cis
1235	cis-1,3-DiClpe	1/15/2004	ND	0.2	ug/l	0.5	0.2		32-cis
1236	cis-1,3-DiClpe	1/3/2002	ND	0.25	ug/l	0.5	0.25		32-cis
1237	trans-1,3DiClpe	1/3/2002	ND	0.22	ug/l	0.5	0.22		32-tran
1238	trans-1,3DiClpe	6/6/2002	ND	0.3	ug/l	0.5	0.3		32-tran
1239	trans-1,3DiClpe	7/18/2002	ND	0.3	ug/l	0.5	0.3		32-tran
1240	trans-1,3DiClpe	1/2/2003	ND	0.3	ug/l	0.5	0.3		32-tran
1241	trans-1,3DiClpe	7/17/2003	ND	0.3	ug/l	0.5	0.3		32-tran
1242	trans-1,3DiClpe	1/15/2004	ND	0.3	ug/l	0.5	0.3		32-tran
1243	Chlorpyrifos	7/18/2002	ND	0.2	ug/l	0.5	0.2		B
1244	Chlorpyrifos	1/2/2003	ND	0.2	ug/l	0.5	0.2		B
1245	Chlorpyrifos	1/15/2004	ND	0.04	ug/l	0.05	0.04		B
1246	Diazinon	7/18/2002	ND	0.3	ug/l	0.6	0.3		C
1247	Diazinon	1/2/2003	ND	0.3	ug/l	0.6	0.3		C
1248	Diazinon	1/15/2004	ND	0.04	ug/l	0.05	0.04		C
1249	Tributyltin	7/18/2002	ND	0.00408	ug/l		0.00159		
1250	Tributyltin	1/2/2003	ND	0.00408	ug/l		0.00148		
1251	Tributyltin	1/15/2004	ND	0.000465	ug/l		0.00145		



Appendix F-2(1)
Reasonable Potential Analysis Results for Discharge Point 001

Fact Sheet Attachment F-2(1)
C and H Sugar Company, Inc. - Discharge Point 001
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3					Step 4		Step 2	Step 3		Step 4	Step 6	Step 6	Step 7 & 9		
	Constituent name	C (ug/L) Lowest (most stringent) Criteria [a] (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND.	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration (MEC) (ug/L) (MEC= detected max value; If all ND & MDL<C than MEC = MDL)	MEC vs. C Y if MEC >= C, effluent limitation is required; 2. If MEC<C, go to Step 5		Background Data Available?	Are all background data points non-detects?	If all background data points ND Enter the min. detection limit (MDL) (ug/L)	Enter the pollutant background detected max conc (ug/L)	If all B is ND, is MDL>C? (If Y, Go To Step 7)	B vs. C If B>C, effluent limitation is required	f) Review other information in the SIP page 4. If other information indicates limits are required If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	r	S	T
1	Antimony	4300	Y	N		0.6		0.6	MEC<C, go to Step 5		Y			1.8		B<C, Step 7			
2	Arsenic [b]	36	Y	N		45		45	Y		Y			2.46		B<C, Step 7		Y	MEC => C [45,000 ug/l vs 36,000 ug/l]
3	Beryllium	No Criteria	Y	Y	0.06		No Criteria	0.06	No Criteria		Y	Y		0.215		No Criteria	No Criteria		Uo - No Criteria
4	Cadmium [b]	0.637415878	Y			0.6		0.6	MEC<C, go to Step 5		Y			0.1268		B<C, Step 7			
5a	Chromium (III)	113.4671786	Y	N		40		40	MEC<C, go to Step 5							No detected value of B, Step 7			
5b	Chromium (VI) [b]	11.43451143	Y	Y	0.9		MDL<=C, MDL=MEC	0.9	MEC<C, go to Step 5		Y			4.4		B<C, Step 7			
6	Copper [b]	7.164	Y	N		20		20	Y		Y			2.55		B<C, Step 7		Y	MEC => C [20.0 ug/l vs 7.16 ug/l]
7	Lead [b]	1.249889176	Y	N		2.6		2.6	Y		Y			0.804		B<C, Step 7		Y	MEC => C [2.600 ug/l vs 1.250 ug/l]
8	Mercury [303d listed] [b]	0.025	Y	N		0.0982		0.062	Y		Y			0.0066		B<C, Step 7		Y	MEC => C [0.06 ug/l vs 0.03 ug/l]
9	Nickel [b]	30.37037037	Y	N		160		160	Y		Y			9.73		B<C, Step 7		Y	MEC => C [160.000 ug/l vs 30.370 ug/l]
10	Selenium [303d listed] [b]	5	Y	N		26		26	Y		Y			0.39		B<C, Step 7		Y	MEC => C [26.000 ug/l vs 5.000 ug/l]
11	Silver [b]	1.148510332	Y	N		0.03		0.03	MEC<C, go to Step 5		Y			0.052		B<C, Step 7			
12	Thallium	6.3	Y	N		0.18		0.18	MEC<C, go to Step 5		Y			0.21		B<C, Step 7			
13	Zinc [b]	64.33273609	Y	N		220		220	Y		Y			5.1		B<C, Step 7		Y	MEC => C [220.000 ug/l vs 64.333 ug/l]
14	Cyanide [b]	1	Y	N		4		4	Y		Y	Y	0.4		N	No detected value of B, Step 7		Y	MEC => C [4.0 ug/l vs 1.0 ug/l]
15	Asbestos	No Criteria	N			0	No Criteria		No Criteria							No Criteria	No Criteria		Uo - No Criteria
16	2,3,7,8-TCDD (303d listed)	0.000000014	Y	Y	0.000000637						Y	Y	0.0000003500		Y	No detected value of B, Step 7			
16-TEQ	2,3,7,8-TCDD TEQ (303d listed)	0.000000014	Y	N		5.617E-08		5.617E-08	Y		Y			0.000000071		Y	Y	Y	MEC => C [5.62E-08 ug/l vs 1.40E-08 ug/l]
17	Acrolein	780	Y	Y	0.56		MDL<=C, MDL=MEC	0.56	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
18	Acrylonitrile	0.66	Y	Y	0.33		MDL<=C, MDL=MEC	0.33	MEC<C, go to Step 5		Y			0.03		B<C, Step 7			
19	Benzene	71	Y	N		1.6		1.6	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
20	Bromoform	360	Y	Y	0.07		MDL<=C, MDL=MEC	0.07	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
21	Carbon Tetrachloride	4.4	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y			0.06		B<C, Step 7			
22	Chlorobenzene	21000	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
23	Chlorodibromomethane	34	Y	N		1.9		1.9	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
24	Chloroethane	No Criteria	Y	Y	0.07		No Criteria	0.07	No Criteria		Y	Y	0.5		N	No Criteria	No Criteria		Uo - No Criteria
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	0.1		No Criteria	0.1	No Criteria		Y	Y	0.5		N	No Criteria	No Criteria		Uo - No Criteria
26	Chloroform	No Criteria	Y	N		61	No Criteria	61	No Criteria		Y	Y	0.5		N	No Criteria	No Criteria		Uo - No Criteria
27	Dichlorobromomethane	46	Y	N		17		17	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
28	1,1-Dichloroethane	No Criteria	Y	Y	0.05		No Criteria	0.05	No Criteria		Y	Y	0.05		N	No Criteria	No Criteria		Uo - No Criteria
29	1,2-Dichloroethane	99	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y			0.04		B<C, Step 7			
30	1,1-Dichloroethylene	3.2	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
31	1,2-Dichloropropane	39	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
32	1,3-Dichloropropylene	1700	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5							No detected value of B, Step 7			
33	Ethylbenzene	29000	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
34	Methyl Bromide	4000	Y	Y	0.05		MDL<=C, MDL=MEC	0.05	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
35	Methyl Chloride	No Criteria	Y	Y	0.04		No Criteria	0.04	No Criteria		Y	Y	0.5		N	No Criteria	No Criteria		Uo - No Criteria
36	Methylene Chloride	1600	Y	Y	0.07		MDL<=C, MDL=MEC	0.07	MEC<C, go to Step 5		Y			0.5		B<C, Step 7			
37	1,1,2,2-Tetrachloroethane	11	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
38	Tetrachloroethylene	8.85	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
39	Toluene	200000	Y	N		0.46		0.46	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
40	1,2-Trans-Dichloroethylene	140000	Y	Y	0.05		MDL<=C, MDL=MEC	0.05	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
41	1,1,1-Trichloroethane	No Criteria	Y	Y	0.06		No Criteria	0.06	No Criteria		Y	Y	0.5		N	No Criteria	No Criteria		Uo - No Criteria
42	1,1,2-Trichloroethane	42	Y	Y	0.07		MDL<=C, MDL=MEC	0.07	MEC<C, go to Step 5		Y	Y	0.05		N	No detected value of B, Step 7			
43	Trichloroethylene	81	Y	Y	0.06		MDL<=C, MDL=MEC	0.06	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
44	Vinyl Chloride	525	Y	Y	0.05		MDL<=C, MDL=MEC	0.05	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
45	2-Chlorophenol	400	Y	Y	0.4		MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	1.2		N	No detected value of B, Step 7			
46	2,4-Dichlorophenol	790	Y	Y	0.3		MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	1.3		N	No detected value of B, Step 7			
47	2,4-Dimethylphenol	2300	Y	Y	0.3		MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	1.3		N	No detected value of B, Step 7			
48	2-Methyl- 4,6-Dinitrophenol	765	Y	Y	0.4		MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	1.2		N	No detected value of B, Step 7			
49	2,4-Dinitrophenol	14000	Y	Y	0.3		MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.7		N	No detected value of B, Step 7			
50	2-Nitrophenol	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria		Y	Y	1.3		N	No Criteria	No Criteria		Uo - No Criteria
51	4-Nitrophenol	No Criteria	Y	Y	0.2		No Criteria	0.2	No Criteria		Y	Y	1.6		N	No Criteria	No Criteria		Uo - No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria		Y	Y	1.1		N	No Criteria	No Criteria		Uo - No Criteria
53	Pentachlorophenol	7.9	Y	Y	0.4		MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	1		N	No detected value of B, Step 7			
54	Phenol	4600000	Y	Y	0.2		MDL<=C, MDL=MEC	0.2	MEC<C, go to Step 5		Y	Y	1.3		N	No detected value of B, Step 7			
55	2,4,6-Trichlorophenol	6.5	Y	Y	0.2		All ND MDL<=C, MDL=MEC	0.2	MEC<C, go to Step 5		Y	Y	1.3		N	No detected value of B, Step 7			
56	Acenaphthene	2700	Y	Y	0.031		All ND MDL<=C, MDL=MEC	0.031	MEC<C, go to Step 5		Y			0.0015		B<C, Step 7			
57	Acenaphthylene	No Criteria	Y	Y	0.02		No Criteria	0.02	No Criteria		Y			0.00053		No Criteria	No Criteria		Uo - No Criteria
58	Anthracene	110000	Y	Y	0.031		All ND MDL<=C, MDL=MEC	0.031	MEC<C, go to Step 5		Y			0.0005		B<C, Step 7			
59	Benzidine	0.00054	Y	Y	0.3		MDL > C, Go to Step 5				Y	Y	0.0015		Y	No detected value of B, Step 7			
60	Benzo(a)Anthracene	0.049	Y	Y	0.02		MDL > C, Go to Step 5	0.02	MEC<C, go to Step 5		Y			0.0053		B<C, Step 7			
61	Benzo(a)Pyrene	0.049	Y	Y	0.02		MDL > C, Go to Step 5	0.02	MEC<C, go to Step 5		Y			0.00029		B<C, Step 7			
62	Benzo(b)Fluoranthene	0.049	Y	Y	0.031		MDL > C, Go to Step 5	0.031	MEC<C, go to Step 5		Y			0.0046		B<C, Step 7			
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.031		No Criteria	0.031	No Criteria		Y			0.0027		No Criteria	No Criteria		Uo - No Criteria
64	Benzo(k)Fluoranthene	0.049	Y	Y	0.041		MDL > C, Go to Step 5	0.041	MEC<C, go to Step 5		Y			0.0015		B<C, Step 7			
65	Bis(2-Chloroethoxy)Methane	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria		Y	Y	0.3		N	No Criteria	No Criteria		Uo - No Criteria
66	Bis(2-Chloroethyl)Ether	1.4	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
67	Bis(2-Chloroisopropyl)Ether	170000	Y	Y	0.6		All ND MDL<=C, MDL=MEC	0.6	MEC<C, go to Step 5							No detected value of B, Step 7			
68	Bis(2-Ethylhexyl)Phthalate	5.9	Y	N		21		21	Y		Y	Y	0.5		N	No detected value of B, Step 7		Y	MEC => C [21.0 ug/l vs 5.90 ug/l]

Fact Sheet Attachment F-2(1)
C and H Sugar Company, Inc. - Discharge Point 001
Reasonable Potential Analysis Results

Beginning			Step 2	Step 3					Step 4		Step 2	Step 3		Step 4	Step 5	Step 6	Step 7 & 8		
	Constituent name	C (ug/L) Lowest (most stringent) Criteria [a] (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND.	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration (MEC) (ug/L) (MEC= detected max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C Y if If MEC >= C, effluent limitation is required. 2. If MEC<C, go to Step 5		Background Data Available?	Are all background data points non-detects?	If all background data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant background detected max conc (ug/L)	If all B is ND, is MDL>C? (If Y, Go To Step 7)	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. Y if other information indicates limits are required. If information is unavailable or insufficient 8) the RWQCB shall establish interim monitoring requirements	RPA Result	Reason
69	4-Bromophenyl Phenyl Ether	No Criteria	Y	Y	0.4		No Criteria	0.4	No Criteria		Y	Y	0.23		N	No Criteria	No Criteria		Ue - No Criteria
70	Butylbenzyl Phthalate	5200	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.52		N	No detected value of B, Step 7			
71	2-Chloronaphthalene	4300	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
72	4-Chlorophenyl Phenyl Ether	No Criteria	Y	Y	0.4		No Criteria	0.4	No Criteria		Y	Y	0.3		N	No Criteria	No Criteria		Ue - No Criteria
73	Chrysene	0.049	Y	Y	0.041		MDL > C, Go to Step 5	0.041	MEC<C, go to Step 5		Y			0.0024		B<C, Step 7			
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.031		MDL > C, Go to Step 5	0.031	MEC<C, go to Step 5		Y			0.00064		B<C, Step 7			
75	1,2-Dichlorobenzene	17000	Y	Y	0.12		All ND MDL<=C, MDL=MEC	0.12	MEC<C, go to Step 5		Y	Y	0.8		N	No detected value of B, Step 7			
76	1,3-Dichlorobenzene	2600	Y	Y	0.16		All ND MDL<=C, MDL=MEC	0.16	MEC<C, go to Step 5		Y	Y	0.8		N	No detected value of B, Step 7			
77	1,4-Dichlorobenzene	2600	Y	Y	0.12		All ND MDL<=C, MDL=MEC	0.12	MEC<C, go to Step 5		Y	Y	0.8		N	No detected value of B, Step 7			
78	3,3 Dichlorobenzidine	0.077	Y	Y	0.3		MDL > C, Go to Step 5				Y	Y	0.001		N	No detected value of B, Step 7			
79	Diethyl Phthalate	120000	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.24		N	No detected value of B, Step 7			
80	Dimethyl Phthalate	2900000	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.24		N	No detected value of B, Step 7			
81	Di-n-Butyl Phthalate	12000	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.5		N	No detected value of B, Step 7			
82	2,4-Dinitrotoluene	9.1	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.27		N	No detected value of B, Step 7			
83	2,6-Dinitrotoluene	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria		Y	Y	0.29		N	No Criteria	No Criteria		Ue - No Criteria
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	0.4		No Criteria	0.4	No Criteria		Y	Y	0.38		N	No Criteria	No Criteria		Ue - No Criteria
85	1,2-Diphenylhydrazine	0.54	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y			0.0037		B<C, Step 7			
86	Fluoranthene	370	Y	Y	0.03		All ND MDL<=C, MDL=MEC	0.03	MEC<C, go to Step 5		Y			0.011		B<C, Step 7			
87	Fluorene	14000	Y	Y	0.02		All ND MDL<=C, MDL=MEC	0.02	MEC<C, go to Step 5		Y			0.00208		B<C, Step 7			
88	Hexachlorobenzene	0.00077	Y	Y	0.4		MDL > C, Go to Step 5				Y			0.0000202		B<C, Step 7			
89	Hexachlorobutadiene	50	Y	Y	0.2		All ND MDL<=C, MDL=MEC	0.2	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
90	Hexachlorocyclopentadiene	17000	Y	Y	0.1		All ND MDL<=C, MDL=MEC	0.1	MEC<C, go to Step 5		Y	Y	0.31		N	No detected value of B, Step 7			
91	Hexachloroethane	8.9	Y	Y	0.2		All ND MDL<=C, MDL=MEC	0.2	MEC<C, go to Step 5		Y	Y	0.2		N	No detected value of B, Step 7			
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.031		MDL > C, Go to Step 5	0.031	MEC<C, go to Step 5		Y			0.004		B<C, Step 7			
93	Isophorone	600	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
94	Naphthalene	No Criteria	Y	Y	0.02		No Criteria	0.02	No Criteria		Y			0.0022		No Criteria	No Criteria		Ue - No Criteria
95	Nitrobenzene	1900	Y	Y	0.3		All ND MDL<=C, MDL=MEC	0.3	MEC<C, go to Step 5		Y	Y	0.25		N	No detected value of B, Step 7			
96	N-Nitrosodimethylamine	8.1	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.3		N	No detected value of B, Step 7			
97	N-Nitrosodi-n-Propylamine	1.4	Y	Y	0.2		All ND MDL<=C, MDL=MEC	0.2	MEC<C, go to Step 5		Y	Y	0.001		N	No detected value of B, Step 7			
98	N-Nitrosodiphenylamine	16	Y	Y	0.4		All ND MDL<=C, MDL=MEC	0.4	MEC<C, go to Step 5		Y	Y	0.001		N	No detected value of B, Step 7			
99	Phenanthrene	No Criteria	Y	Y	0.03		No Criteria	0.03	No Criteria		Y			0.0061		No Criteria	No Criteria		Ue - No Criteria
100	Pyrene	11000	Y	Y	0.03		All ND MDL<=C, MDL=MEC	0.03	MEC<C, go to Step 5		Y			0.0051		B<C, Step 7			
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	0.3		No Criteria	0.3	No Criteria		Y	Y	0.3		N	No Criteria	No Criteria		Ue - No Criteria
102	Aldrin	0.00014	Y	Y	0.003		MDL > C, Go to Step 5				Y					No detected value of B, Step 7			
103	alpha-BHC	0.013	Y	Y	0.002		All ND MDL<=C, MDL=MEC	0.002	MEC<C, go to Step 5		Y			0.000496		B<C, Step 7			
104	beta-BHC	0.046	Y	Y	0.001		All ND MDL<=C, MDL=MEC	0.001	MEC<C, go to Step 5		Y			0.000413		B<C, Step 7			
105	gamma-BHC	0.063	Y	Y	0.001		All ND MDL<=C, MDL=MEC	0.001	MEC<C, go to Step 5		Y			0.0007034		B<C, Step 7			
106	delta-BHC	No Criteria	Y	Y	0.001		No Criteria	0.001	No Criteria		Y			0.000042		No Criteria	No Criteria		Ue - No Criteria
107	Chlordane (303d listed)	0.00059	Y	Y	0.005		MDL > C, Go to Step 5				Y			0.00018		B<C, Step 7			
108	4,4-DDT (303d listed)	0.00059	Y	Y	0.001		MDL > C, Go to Step 5				Y			0.000066		B<C, Step 7			
109	4,4-DDE	0.00059	Y	Y	0.001		MDL > C, Go to Step 5				Y			0.000693					
110	4,4-DDD	0.00084	Y	Y	0.001		MDL > C, Go to Step 5				Y			0.000313		B<C, Step 7			
111	Dieldrin (303d listed)	0.00014	Y	Y	0.002		MDL > C, Go to Step 5				Y			0.000264					
112	alpha-Endosulfan	0.0087	Y	Y	0.002		All ND MDL<=C, MDL=MEC	0.002	MEC<C, go to Step 5		Y			0.000031		B<C, Step 7			
113	beta-Endosulfan	0.0087	Y	Y	0.001		All ND MDL<=C, MDL=MEC	0.001	MEC<C, go to Step 5		Y			0.000069		B<C, Step 7			
114	Endosulfan Sulfate	240	Y	Y	0.001		All ND MDL<=C, MDL=MEC	0.001	MEC<C, go to Step 5		Y			0.0000819		B<C, Step 7			
115	Endrin	0.0023	Y	Y	0.002		All ND MDL<=C, MDL=MEC	0.002	MEC<C, go to Step 5		Y			0.000036		B<C, Step 7			
116	Endrin Aldehyde	0.81	Y	Y	0.002		All ND MDL<=C, MDL=MEC	0.002	MEC<C, go to Step 5		Y					No detected value of B, Step 7			
117	Heptachlor	0.00021	Y	Y	0.003		MDL > C, Go to Step 5				Y			0.000019		B<C, Step 7			
118	Heptachlor Epoxide	0.00011	Y	Y	0.002		MDL > C, Go to Step 5				Y			0.00002458		B<C, Step 7			
119-125	PCBs sum (303d listed)	0.00017	Y	Y	0.031		MDL > C, Go to Step 5									No detected value of B, Step 7			
126	Toxaphene	0.0002	Y	Y	0.15		MDL > C, Go to Step 5									No detected value of B, Step 7			
	Tributyltin	0.0074	Y	Y	0.00044		All ND MDL<=C, MDL=MEC	0.00044	MEC<C, go to Step 5		Y	Y	0.001		N	No detected value of B, Step 7			
	Total PAHs	15	Y	Y	0.02		All ND MDL<=C, MDL=MEC	0.02	MEC<C, go to Step 5		Y			0.26		B<C, Step 7			

a. The most stringent of salt and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.

c. Acronyms in the "Final Result" column:

Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria

Ue: No criteria available

IM: Interim monitoring is required

Appendix F-2(2)
Reasonable Potential Analysis Results for Discharge Point 002

Fact Sheet Attachment F-2(2)
C and H Sugar Company, Inc. - Discharge Point 002
Reasonable Potential Analysis Results

		C (ug/L)					Ambient Background				
	Constituent name	Lowest (most stringent) Criteria [a] (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND	Enter the pollutant effluent detected max conc (ug/L)	Ambient background - If all data points ND Enter the min detection limit (MDL) (ug/L)	Ambient background - If all data points ND Enter the min detection limit (MDL) (ug/L)	7) Review other information in the SIP page 4. Y if other information indicates limits are required. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
A	B	C	D	E	F	G	N	O	r	S	T
1	Antimony	4300	Y	N		0.7		1.8			
2	Arsenic [b]	36	Y	N		1.7		2.46			
3	Beryllium	No Criteria	Y	Y	0.06			0.215	No Criteria		Uo - No Criteria
4	Cadmium [b]	0.637415878	Y			0.2		0.1268			
5a	Chromium (III)	113.4671795	Y	N		9.8					
5b	Chromium (VI) [b]	11.43451143	Y	Y	0.9			4.4			
6	Copper	7.164	Y	N		13		2.55		Y	MEC => C [13.000 ug/l vs 7.164 ug/l]
7	Lead [b]	1.249869176	Y	N		2.8		0.8		Y	MEC => C [2.800 ug/l vs 1.250 ug/l]
8	Mercury (303d listed) [b]	0.025	Y	N		0.98		0.0086		Y	MEC => C [0.980 ug/l vs 0.025 ug/l]
9	Nickel [b]	30.37037037	Y	N		13		3.7			
10	Selenium (303d listed) [b]	5	Y	N		2		0.39			
11	Silver [b]	1.146510332	Y	N		0.2		0.0516			
12	Thallium	6.3	Y	N		0.095		0.21			
13	Zinc [b]	64.33273609	Y	N		30		5.1			
14	Cyanide [b]	1	Y	N		19	0.4			Y	MEC => C [19.000 ug/l vs 1.000 ug/l]
15	Asbestos	No Criteria	N						No Criteria		Uo - No Criteria
16	2,3,7,8-TCDD (Dioxin) (303d listed)	0.000000014	Y	Y	0.000000637		0.0000003500				Effluent MDL > C, Interim Monitor
16-TEQ	2,3,7,8-TCDD TEQ (303d listed)	0.000000014	Y	Y	0.000000637		0.000000001				Effluent MDL > C, Interim Monitor
17	Acrolein	780	Y	Y	1		0.5				
18	Acrylonitrile	0.66	Y	Y	1			0.03			Effluent MDL > C, Interim Monitor
19	Benzene	71	Y	Y	0.27		0.05				
20	Bromoform	360	Y	N		0.9	0.5				
21	Carbon Tetrachloride	4.4	Y	Y	0.42			0.06			
22	Chlorobenzene	21000	Y	Y	0.19		0.5				
23	Chlorodibromomethane	34	Y	N		16	0.05				
24	Chloroethane	No Criteria	Y	Y	0.34		0.5		No Criteria		Uo - No Criteria
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	0.31		0.5		No Criteria		Uo - No Criteria
26	Chloroform	No Criteria	Y	N		210	0.5		No Criteria		Uo - No Criteria
27	Dichlorobromomethane	46	Y	N		28	0.05				
28	1,1-Dichloroethane	No Criteria	Y	Y	0.28		0.05		No Criteria		Uo - No Criteria
29	1,2-Dichloroethane	99	Y	Y	0.18			0.04			
30	1,1-Dichloroethylene	3.2	Y	Y	0.37		0.5				
31	1,2-Dichloropropane	39	Y	Y	0.2		0.05				
32	1,3-Dichloropropylene	1700	Y	Y	0.2						
33	Ethylbenzene	29000	Y	Y	0.3		0.5				
34	Methyl Bromide	4000	Y	Y	0.42		0.5				
35	Methyl Chloride	No Criteria	Y	N		1	0.5		No Criteria		Uo - No Criteria
36	Methylene Chloride	1600	Y	Y	0.38			0.5			
37	1,1,2,2-Tetrachloroethane	11	Y	Y	0.3		0.05				
38	Tetrachloroethylene	8.85	Y	Y	0.32		0.05				
39	Toluene	200000	Y	Y	0.25		0.3				
40	1,2-Trans-Dichloroethylene	140000	Y	Y	0.3		0.5				
41	1,1,1-Trichloroethane	No Criteria	Y	Y	0.35		0.5		No Criteria		Uo - No Criteria
42	1,1,2-Trichloroethane	42	Y	Y	0.27		0.05				
43	Trichloroethylene	81	Y	Y	0.29		0.5				
44	Vinyl Chloride	525	Y	Y	0.34		0.5				
45	2-Chlorophenol	400	Y	Y	0.4		1.2				
46	2,4-Dichlorophenol	790	Y	Y	0.3		1.3				
47	2,4-Dimethylphenol	2300	Y	Y	0.3		1.3				
48	2-Methyl- 4,6-Dinitrophenol	765	Y	Y	0.4		1.2				
49	2,4-Dinitrophenol	14000	Y	Y	0.3		0.7				
50	2-Nitrophenol	No Criteria	Y	Y	0.3		1.3		No Criteria		Uo - No Criteria
51	4-Nitrophenol	No Criteria	Y	Y	0.2		1.6		No Criteria		Uo - No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.3		1.1		No Criteria		Uo - No Criteria
53	Pentachlorophenol	7.9	Y	Y	0.4		1				
54	Phenol	4600000	Y	N		6	1.3				
55	2,4,6-Trichlorophenol	6.5	Y	Y	0.2		1.3				
56	Acenaphthene	2700	Y	Y	0.17			0.0019			
57	Acenaphthylene	No Criteria	Y	Y	0.03			0.00053	No Criteria		Uo - No Criteria
58	Anthracene	110000	Y	Y	0.16			0.0005			
59	Benzidine	0.00054	Y	Y	0.3		0.0015				
60	Benzo(a)Anthracene	0.049	Y	Y	0.12			0.0053			
61	Benzo(a)Pyrene	0.049	Y	Y	0.09			0.00029			
62	Benzo(b)Fluoranthene	0.049	Y	Y	0.11			0.0046			
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.06			0.0027	No Criteria		Uo - No Criteria
64	Benzo(k)Fluoranthene	0.049	Y	Y	0.16			0.0015			
65	Bis(2-Chloroethoxy)Methane	No Criteria	Y	Y	0.3		0.3		No Criteria		Uo - No Criteria
66	Bis(2-Chloroethyl)Ether	1.4	Y	Y	0.3		0.3				
67	Bis(2-Chloroisopropyl)Ether	170000	Y	Y	0.6						

Fact Sheet Attachment F-2(2)
C and H Sugar Company, Inc. - Discharge Point 002
Reasonable Potential Analysis Results

	Constituent name	C (µg/L) Lowest (most stringent) Criteria[a] (Enter "No Criteria" for no criteria)	Effluent Data Available?	Are all data points non-detects?	Minimum MDL (ug/L) if all data ND.	Enter the pollutant effluent detected max conc (ug/L)	Ambient Background: Ambient background - If all data points ND Enter the min detection limit (MDL) (ug/L)	Ambient Background: Ambient background - If all data points ND Enter the min detection limit (MDL) (ug/L)	7) Review other information in the SIP page 4. Y if other information indicates limits are required. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
68	Bis-(2-Ethylhexyl)Phthalate	5.9	Y	N		17	0.5			Y	MEC => C [17.0 ug/l vs 5.9 ug/l]
69	4-Bromophenyl Phenyl Ether	No Criteria	Y	Y	0.4		0.23		No Criteria		Uo - No Criteria
70	Butylbenzyl Phthalate	5200	Y	Y	0.4		0.52				
71	2-Chloronaphthalene	4300	Y	Y	0.3		0.3				
72	4-Chlorophenyl Phenyl Ether	No Criteria	Y	Y	0.4		0.3		No Criteria		Uo - No Criteria
73	Chrysene	0.049	Y	Y	0.14			0.0024			
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.04			0.00084			
75	1,2-Dichlorobenzene	17000	Y	Y	0.112		0.8				
76	1,3-Dichlorobenzene	2600	Y	Y	0.16		0.8				
77	1,4-Dichlorobenzene	2600	Y	Y	0.3		0.8				
78	3,3 Dichlorobenzidine	0.077	Y	Y	0.3		0.001				
79	Diethyl Phthalate	120000	Y	Y	0.4		0.24				
80	Dimethyl Phthalate	2900000	Y	Y	0.4		0.24				
81	Di-n-Butyl Phthalate	12000	Y	Y	0.4		0.5				
82	2,4-Dinitrotoluene	9.1	Y	Y	0.3		0.27				
83	2,6-Dinitrotoluene	No Criteria	Y	Y	0.3		0.29		No Criteria		Uo - No Criteria
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	0.4		0.38		No Criteria		Uo - No Criteria
85	1,2-Diphenylhydrazine	0.54	Y	Y	0.3			0.0037			
86	Fluoranthene	370	Y	Y	0.03			0.011			
87	Fluorene	14000	Y	Y	0.02			0.00208			
88	Hexachlorobenzene	0.00077	Y	Y	0.4			0.0000202			
89	Hexachlorobutadiene	50	Y	Y	0.2		0.3				
90	Hexachlorocyclopentadiene	17000	Y	Y	0.1		0.31				
91	Hexachloroethane	8.9	Y	Y	0.2		0.2				
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.04			0.004			
93	Isophorone	600	Y	Y	0.3		0.3				
94	Naphthalene	No Criteria	Y	Y	0.05			0.0023	No Criteria		Uo - No Criteria
95	Nitrobenzene	1900	Y	Y	0.3		0.25				
96	N-Nitrosodimethylamine	8.1	Y	Y	0.4		0.3				
97	N-Nitrosodi-n-Propylamine	1.4	Y	Y	0.3		0.001				
98	N-Nitrosodiphenylamine	16	Y	Y	0.4		0.001				
99	Phenanthrene	No Criteria	Y	Y	0.03			0.0081	No Criteria		Uo - No Criteria
100	Pyrene	11000	Y	Y	0.03			0.0051			
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	0.3		0.3		No Criteria		Uo - No Criteria
102	Aldrin	0.00014	Y	Y	0.003						
103	alpha-BHC	0.013	Y	Y	0.002			0.000496			
104	beta-BHC	0.046	Y	Y	0.001			0.000413			
105	gamma-BHC	0.063	Y	Y	0.001			0.0007034			
106	delta-BHC	No Criteria	Y	Y	0.001			0.000042	No Criteria		Uo - No Criteria
107	Chlordane (303d listed)	0.00059	Y	Y	0.005			0.00018			
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.001			0.000065			
109	4,4'-DDE	0.00059	Y	Y	0.001			0.000693			
110	4,4'-DDD	0.00084	Y	Y	0.001			0.000313			
111	Dieldrin (303d listed)	0.00014	Y	Y	0.002			0.000264			
112	alpha-Endosulfan	0.0087	Y	Y	0.002			0.000031			
113	beta-Endolsulfan	0.0087	Y	Y	0.001			0.000069			
114	Endosulfan Sulfate	240	Y	Y	0.001			0.0000819			
115	Endrin	0.0023	Y	Y	0.002			0.000036			
116	Endrin Aldehyde	0.81	Y	Y	0.002						
117	Heptachlor	0.00021	Y	Y	0.003			0.000019			
118	Heptachlor Epoxide	0.00011	Y	Y	0.002			0.00002458			
119-125	PCBs sum (303d listed)	0.00017	Y	Y	0.03						
126	Toxaphene	0.0002	Y	Y	0.2						
	Tributylin	0.0074	Y	Y	0.000465		0.001				
	Total PAHs	15	Y	Y	0.02			0.26			

a. The most stringent of salt and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.

c. Acronyms in the "Final Result" column:

Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria

Uo: No criteria available

IM: Interim monitoring is required

Appendix F-3(1)
Calculation of Final WQBELs for Discharge Point 001

Fact Sheet Appendix F-3 (1)
C and H Sugar and CSD - Discharge Point 001
WQBEL Calculations

PRIORITY POLLUTANTS	Arsenic	Copper	Copper alternate	Lead	Mercury	Nickel	Selenium	Zinc	Cyanide	Cynide alternate	Dioxin TEQ	Bis(2-Ethylhexyl) Phthalate
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Basis and Criteria type	BP SW Aq Life	CTR SW Aq Life	Copper SSO	BP FW Aq Life	BP FW Aq Life	BP SW Aq Life	NTR Criterion for the Bay	BP FW Aq Life	NTR Criterion for the Bay	BP, SSO	BP narrative	CTR HH
Chronic Dissolved WQO		3.1	6.0									
Acute Dissolved WQO	36	4.8	9.4	1.2	0.025	30	5	64	1	2.9	1.40E-08	5.9
Chronic Translator		0.38	0.38									
Acute Translator		0.67	0.67									
Water Effect Ratio		2.40	—									
Dilution Factor (D) (if applicable)	9	9	9	9	0	9	0	9	9	9	0	9
No. of samples per month	4	4	4	4	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
HH criteria analysis required? (Y/N)	N	N	N	N	Y	Y	N	N	Y	Y	Y	Y
Applicable Acute WQO	69	17	14	32	2.4	130	20	64	1	9.4		
Applicable Chronic WQO	36	20	16	1.2	0.025	30	5	64	1	2.9		
HH criteria					0.051	4,600			220,000	220,000	1.40E-08	5.9
Background (max conc for Aq Life calc)	2.46	2.55	2.55	0.804	0.0086	3.73	0.39	5.1	0.4	0.4	7.10E-08	0.67
Background (avg conc for HH calc)					0.00384	2.3			0.40	0.40	3.17E-08	0.55
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	N	Y	N	Y	N	N	N	Y	N
ECA acute	667.9	147.1	117.3	312.8	2.4	1266.4	20.0	594.1	6.4	90.4		
ECA chronic	337.9	177.1	134.9	4.8	0.0	266.4	5.0	594.1	6.4	25.4		
ECA HH					0.051	45979.3			2199996.4	2199996.4	1.40E-08	54.05
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Avg of effluent data points	25.469	10.172	10.172	0.755	0.019	28.844	8.384	77.688				
Std Dev of effluent data points	11.115	3.280	3.280	0.572	0.018	27.525	6.171	66.534				
CV calculated	0.44	0.32	0.32	0.76	0.97	0.95	0.74	0.86	N/A	N/A	N/A	N/A
CV (Selected) - Final	0.44	0.32	0.32	0.76	0.97	0.95	0.74	0.86	0.60	0.60	0.60	0.60
ECA acute mult99	0.41	0.51	0.51	0.26	0.21	0.21	0.27	0.23	0.32	0.32		
ECA chronic mult99	0.62	0.70	0.70	0.46	0.38	0.39	0.47	0.42	0.53	0.53		
LTA acute	275.90	74.34	59.33	81.94	0.50	269.37	5.37	139.34	2.05	29.03		
LTA chronic	209.39	123.55	94.17	2.17	0.01	102.95	2.33	248.84	3.38	13.40		
minimum of LTAs	209.39	74.34	59.33	2.17	0.01	102.95	2.33	139.34	2.05	13.40		
AMEL mult95	1.39	1.28	1.28	1.71	1.92	1.90	1.69	1.81	1.55	1.55	1.55	1.55
MDEL mult99	2.42	1.98	1.98	3.82	4.78	4.70	3.72	4.26	3.11	3.11	3.11	3.11
AMEL (aq life)	291.71	95.52	76.23	3.71	0.02	195.72	3.92	251.57	3.19	20.80		
MDEL(aq life)	506.87	147.05	117.35	8.30	0.05	484.01	8.65	594.10	6.40	41.72		
MDEL/AMEL Multiplier	1.74	1.54	1.54	2.24	2.49	2.47	2.21	2.36	2.01	2.01	2.01	2.01
AMEL (human hlth)					0.051	45979			2199996	2199996	1.40E-08	54.05
MDEL (human hlth)					0.127	113704			4413609	4413609	2.81E-08	108.43
minimum of AMEL for Aq. life vs HH	292	96	76	3.71	0.02	195.72	3.92	252	3.19	21	1.40E-08	54
minimum of MDEL for Aq. Life vs HH	507	147	117	8.30	0.05	484.01	8.65	594	6.40	42	2.81E-08	108
Current limit in permit (30-day average)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Current limit in permit (daily)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Final limit - AMEL	290	96	76	3.7	0.018	200	3.9	250	3.2	21	1.40E-08	54
Final limit - MDEL	510	150	120	8.3	0.046	480	8.7	590	6.4	42	2.81E-08	110
Max Effl Conc (MEC)	45	20	20	2.6	0.082	160	26	220	4	4	5.62E-08	21
Feasibility to comply?	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Interim limits if infeasibility is demonstrated	NA	NA	NA	NA	0.16	NA	26	NA	5 (1)	NA	NA	NA
interim limits expressed as					Daily maximum		Daily maximum		Daily maximum			
Basis for inteirm limits					99.87th percentile		99.87th percentile		SIP Minimum level			

Appendix F-3(2)
Calculation of Final WQBELs for Discharge Point 002

Fact Sheet Appendix F-3(2)
C and H Sugar and CSD- Discharge Point 002
Water Quality Based Effluent Limits

PRIORITY POLLUTANTS	Copper	Copper (2)	Lead	Mercury	Cyanide	Cyanide	Dioxin-TEQ	Bis(2-Ethylhexyl) Phthalate
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Basis and Criteria type	CTR, SW	Copper SSO	BP, FW	BP, FW	NTR	BP, SSO	BP, narrative	CTR, HH
Chronic WQO	3.1	6.0	1.2	0.025	1.00	2.90	1.40E-08	5.90
Acute WQO	4.8	9.4						
Chronic Translator	0.38	0.38						
Acute Translator	0.67	0.67						
WER	2.40	---						
Dilution Factor (D) (if applicable)	9	9	9	0	9	9	0	9
No. of samples per month	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	N	N
HH criteria analysis required? (Y/N)	N	N	N	Y	N	Y	Y	Y
Applicable Acute WQO	17	14	32	2.40	1.00	9.40	-----	-----
Applicable Chronic WQO	20	16	1.2	0.025	1.00	2.90	-----	-----
HH criteria	-----		-----	0.051	220,000	220,000	1.40E-08	5.90
Background (Max conc for Aquatic Life calc)	2.55	2.55	0.804	0.0086	0.4	0.4	7.10E-08	0.67
Background (Average conc for Human Health calc)	-----		-----	0.00384	0.4	0.4	3.17E-08	0.55
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N	Y	N
ECA acute	147.1	117.1	313.5	2.4	6.4	90.4		
ECA chronic	177.1	137.1	5.3	0.025	6.4	25.4		
ECA HH				0.051			1.40E-08	54.05
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	N	Y	Y
Avg of effluent data points	4.070	4.106	0.381	0.036	6.770	6.770	-----	-----
Std Dev of effluent data points	1.630	1.626	0.478	0.113	4.806	4.806	-----	-----
CV calculated	0.40	0.40	1.25	3.11	0.71	0.71	N/A	N/A
CV (Selected) - Final	0.40	0.40	1.25	3.11	0.71	0.71	0.60	0.60
ECA acute mult99	0.44	0.44	0.17	0.09	0.28	0.28		
ECA chronic mult99	0.64	0.65	0.31	0.14	0.48	0.48		
LTA acute	64.59	51.81	52.41	0.22	1.78	25.09		
LTA chronic	113.85	88.53	1.63	0.0035	3.05	12.10		
minimum of LTAs	64.59	51.81	1.63	0.0035	1.78	12.10		
AMEL mult95	1.36	1.35	2.18	3.35	1.66	1.66	1.55	1.55
MDEL mult99	2.28	2.26	5.98	10.98	3.60	3.60	3.11	3.11
AMEL (aq life)	87.76	70.17	3.56	0.0117	2.95	20.09		
MDEL(aq life)	147.05	117.05	9.73	0.0385	6.40	43.58		
MDEL/AMEL Multiplier	1.68	1.67	2.74	3.27	2.17	2.17	2.01	2.01
AMEL (human hlth)				0.051			1.40E-08	54.050
MDEL (human hlth)				0.16701			2.81E-08	108.43452
minimum of AMEL for Aq. life vs HH	88	70	3.6	0.012	2.9	20	1.40E-08	54
minimum of MDEL for Aq. Life vs HH	147	117	9.7	0.038	6.4	44	2.81E-08	108
Current limit in permit (30-d avg)	-----		-----	0.21	-----	-----	-----	-----
Current limit in permit (daily)	37		50.3	1	-----	-----	-----	-----
Final limit - AMEL	88	70	3.6	0.012	2.9	20	1.40E-08	54
Final limit - MDEL	150	120	9.7	0.038	6.4	44	2.81E-08	110
Max Effl Conc (MEC)	13	13	2.8	0.98	19	19	7.73E-10	17
Feasibility to comply?	Yes	Yes	Yes	No	No	---	No	Yes
Interim Limit				1 / 0.21	22.8		NA	
Interim limits expressed as				Daily max/ monthly avg	Daily max			
Basis for inteirm limits				Previous permit limits	99.87th percentile			

Appendix F-4
General Basis for Final Compliance Dates [1]
for Discharges North of the Dumbarton Bridge
Revised March 23, 2006

Constituent	Reference for applicable standard	Maximum compliance schedule allowed	Compliance date and Basis
Cyanide Selenium	NTR	10 years	**10-yr, but no later than April 28, 2010** (10 years from effective date of SIP). Basis is the Basin Plan, see note [2].
Copper (salt)	CTR	5 years	**5-yr, but no later than May 18, 2010.** Bases are CTR and SIP. See note [4]
Mercury PAH EPA 610	Numeric Basin Plan (BP)	10 years	**10-yr, but no later than April 28, 2010,** which is 10 years from effective date of SIP (April 28, 2000). Basis is the Basin Plan, See note [2a].
Arsenic Cadmium Chromium (VI) Copper (fresh) Lead Nickel Silver (CMC) Zinc	Numeric BP	10 years	**10-yr, but no later than January 1, 2015.** This is 10 years (using full months) from effective date of 2004 BP amendment (January 5, 2005). Basis is the Basin Plan section 4.3.5.6. See note [2b]. Also, see note [3] for permits issued prior to effective date of 2004 BP amendment.
Dioxins/Furans Tributyltin Other toxic pollutants not in CTR	Narrative BP using SIP methodology	10 years	**10-yr from effective date of permit** (which is when new standard is adopted; no sunset date). Basis is the Basin Plan, see note [2c].
Other priority pollutants on CTR and not listed above	CTR	5 years	**5-yr, but no later than May 18, 2010** (this is 10 years from effective date of CTR/SIP). Basis is the CTR and SIP. See note [4]

[1] These dates are maximum allowable compliance dates applicable. As required by the Basin Plan, CTR, SIP, and 40CFR122.47, compliance should be as short as possible. These are only applicable for discharges north of the Dumbarton Bridge because applicable criteria for the south bay are different than those cited above.

a. For pollutants where there are planned TMDLs or SSOs, and final WQBELs may be affected by those TMDLs and SSOs, maximum timeframes may be appropriate due the uncertain length of time it takes to develop the TMDL/SSO.

b. However, for pollutants without planned TMDLs or SSOs, the State Board in the EBMUD remand order (WQO 2002-0012), directs the Regional Board to establish schedules that are as short as feasible in accordance with requirements.

[2] The Basin Plan provides for a 10-year compliance schedule for implementation of measures to comply with new standards as of the effective date of those standards. This provision has been construed to authorize compliance schedules for new interpretations of existing standards, such as the numeric and narrative water quality objectives specified in the Basin Plan, if the new interpretations result in more stringent limits than in the previous permit.

c. For the numeric standards and objectives in place prior to the SIP (these include the 1995 Basin Plan objectives, and NTR criteria that were implemented in accordance with the Basin Plan), due to the adoption of the SIP, the Water Board has newly interpreted these objectives and standards. The effective date of this new interpretation is the effective date of the SIP (April 28, 2000) for implementation of these numeric Basin Plan objectives.

d. For numeric objectives for the seven pollutants adopted in the 2004 Basin Plan (amendments), the Water Board has newly adopted these objectives. The effective date of these new objectives is the approval date of the 2004 Basin Plan by U.S. EPA (January 5, 2005) for implementation of these numeric Basin Plan objectives. December is the last full month directly preceding the sunset date. Compliance should be set on the first day of the month to ease determination of monthly average limits. Therefore, compliance must begin on January 1, 2015.

e. For narrative objectives, the Board must newly interpreted these objectives using best professional judgment as defined in the Basin Plan for each permit. Therefore, the effective date of this new interpretation will be the effective date of the permit.

[3] The schedules established in permits effective prior to the 2004 Basin Plan (amendments) should be continued into subsequent permits reissued after the 2004 Basin Plan. For example, Permit XX, adopted Nov 2004 became effective Feb 1, 2005. Permit XX establishes a compliance schedule for copper to end April 1, 2010. When next reissued in 2010, the compliance deadline for the same copper limit should remain April 1, 2010. However, if in applying the 2004 BP objective results in a more stringent limit for copper, then a new compliance schedule may extend to the new date in 2015, provided discharger XX justifies the need for the longer compliance schedule.

[4] Permits effective after SIP/CTR that specified 5-yr compliance schedules pursuant to SIP §2.1for CTR pollutants do not qualify for another compliance schedule for those same CTR pollutants during reissuance.

a. An exception to this would be if new data collected during the term of the permit results in more stringent limitations, then a compliance schedule may be allowable for the more stringent limits up to May 18, 2010.

b. Another exception applies to pollutants granted a compliance schedule pursuant to the 2000 SIP §2.2.2, Interim Requirements for Providing Data (note 2005 SIP amendment deleted this section as it is not applicable to permits effective after May 18, 2003). Because SIP §2.1 provides for a maximum 5-year compliance schedule, and permittees granted §2.2.2 schedules have not been previously granted such a schedule under §2.1, those permittees who can demonstrate infeasibility to achieve immediate compliance with limits calculated using the data collected, qualify for a §2.1 schedule up to the maximum statutory date (April 28, 2010).

Cyanide was one pollutant for which the Water Board granted a §2.2.2 compliance schedules to collect better ambient data for cyanide, because the Regional Monitoring Program data were not complete primarily due to inadequate detection limits. BACWA and WSPA funded an effort to collect these data as part of the collaborative receiving water monitoring for other CTR pollutants. The Regional Water Board has received these data, which form the basis for current permits. However, upon further consideration, the SIP §2.2.2 compliance schedule was granted in error, because cyanide is an NTR criterion and not a CTR criterion, and the SIP compliance schedule provisions apply to "...CTR criterion and/or effluent limitations." Thus, it is more appropriate to apply the Basin Plan's compliance schedule provision, which was the implementation tool for NTR criteria prior to the SIP superceding the provisions in the Basin Plan related to calculation of water quality based effluent limitations. As such, the compliance schedule for cyanide should follow note [2a], above.

Appendix F-5(1)
Mercury Mass Limit Calculation for Discharge Point 001

Fact Sheet Appendix 5(1)
C and H Sugar and CSD
Mercury Mass Limit Calculation for Discharge Point 001

Date	Flow (MGD)	Hg (ug/L)	Monthly mass loading (kg/mo)	12-month MA (kg/mo)	ln(MA)
1/9/2002	18.30	0.018	0.0379		
2/15/2002	20.30	0.032	0.0748		
3/14/2002	21.50	0.046	0.1138		
4/11/2002	20.20	0.019	0.0442		
5/9/2002	26.80	0.016	0.0494		
6/6/2002	17.70	0.0069	0.0141		
7/18/2002	15.20	0.03	0.0525		
8/6/2002	34.70	0.021	0.0839		
9/13/2002	29.50	0.0068	0.0231		
10/10/2002	19.00	0.0034	0.0074		
11/7/2002	23.20	0.0031	0.0083		
12/10/2002	21.00	0.0077	0.0186	0.0440	-3.1238
1/7/2003	23.30	0.013	0.0349	0.0437	-3.1296
2/13/2003	26.50	0.0068	0.0207	0.0392	-3.2382
3/13/2003	25.80	0.008	0.0238	0.0317	-3.4506
4/10/2003	30.20	0.0077	0.0268	0.0313	-3.4627
5/8/2003	28.70	0.01	0.1963	0.0430	-3.1454
6/6/2003	24.80	0.008	0.0278	0.0420	-3.1710
7/31/2003	11.80	0.01005	0.0136	0.0394	-3.2338
8/28/2003	20.30	0.0046	0.0107	0.0392	-3.2398
9/11/2003	19.30	0.017	0.0378	0.0381	-3.2670
10/9/2003	20.00	0.0063	0.0145	0.0332	-3.4062
11/6/2003	19.00	0.005	0.0109	0.0323	-3.4327
12/4/2003	20.10	0.0073	0.0169	0.0330	-3.4121
1/15/2004	24.00	0.011	0.0304	0.0346	-3.3653
2/12/2004	16.60	0.02	0.0382	0.0360	-3.3256
3/11/2004	31.60	0.045	0.1637	0.0452	-3.0977
4/22/2004	27.00	0.022	0.0684	0.0505	-2.9865
5/7/2004	20.80	0.082	0.1963	0.0635	-2.7566
6/4/2004	21.20	0.061	0.1488	0.0599	-2.8159
7/16/2004	20.60	0.026	0.0616	0.0625	-2.7733
				Normal distribution	Lognormal distribution
			Average	0.042	-3.192
			Stdev	0.010	0.220
			99.87th %ile	0.072	**0.080**
			Lognormal distribution is used to calculate the mass limit.		

Appendix F-5(2)
Mercury Mass Limit Calculation for Discharge Point 002

Fact Sheet Appendix F-5(2)
C and H Sugar and CSD
Mercury Mass Limit Calculation for Discharge Point 002

Date	Flow CVS (mgd)	002 Discharge Flow (mgd)	Hg Conc. (ug/L)	Mass Loading (kg/mo)	12-month MA Mass Loading (kg/mo)	Ln (MA Mass Loading)
Jan-02	0.36	0.71	0.033	0.0027		
Feb-02	0.31	0.67	0.006	0.0005		
Mar-02	0.32	0.72	0.048	0.0040		
Apr-02	0.28	0.68	0.12	0.0094		
May-02	0.27	0.67	0.0118	0.0009		
Jun-02	0.26	0.65	0.03433	0.0026		
Jul-02	0.36	0.6	0.009933	0.0007		
Aug-02	0.33	0.7	0.039667	0.0032		
Sep-02	0.4	0.67	0.0123	0.0009		
Oct-02	0.28	0.56	0.029333	0.0019		
Nov-02	0.28	0.63	0.013667	0.0010		
Dec-02	0.45	0.77	0.019667	0.0017	0.0025	-6.0095
Jan-03	0.36	0.68	0.024667	0.0019	0.0024	-6.0359
Feb-03	0.31	0.71	0.073433	0.0060	0.0029	-5.8594
Mar-03	0.36	0.78	0.07545	0.0068	0.0031	-5.7809
Apr-03	0.39	0.81	0.010967	0.0010	0.0024	-6.0371
May-03	0.3	0.65	0.2	0.0150	0.0036	-5.6381
Jun-03	0.27	0.6	0.008	0.0006	0.0034	-5.6865
Jul-03	0.25	0.47	0.008	0.0004	0.0034	-5.6927
Aug-03	0.25	0.61	0.008	0.0006	0.0032	-5.7601
Sep-03	0.26	0.6	0.008	0.0006	0.0031	-5.7706
Oct-03	0.26	0.64	0.008	0.0006	0.0030	-5.8060
Nov-03	0.27	0.59	0.009	0.0006	0.0030	-5.8166
Dec-03	0.36	0.74	0.008	0.0007	0.0029	-5.8467
Jan-04	0.36	0.72	0.007475	0.0006	0.0028	-5.8853
Feb-04	0.44	0.76	0.0067	0.0006	0.0023	-6.0624
Mar-04	0.31	0.77	0.0061	0.0005	0.0018	-6.3148
Apr-04	0.28	0.77	0.0105	0.0009	0.0018	-6.3190
May-04	0.26	0.65	0.0029	0.0002	0.0006	-7.4648
Jun-04	0.26	0.66	0.056	0.0043	0.0009	-7.0340
Jul-04	0.25	0.75	0.024	0.0021	0.0010	-6.8899
Aug-04	0.25	0.8	0.0149	0.0014	0.0011	-6.8257
Sep-04	0.24	0.76	0.265	0.0232	0.0030	-5.8188
Oct-04	0.26	0.83	0.496	0.0474	0.0069	-4.9805
Nov-04	0.27	0.77	0.017	0.0015	0.0069	-4.9697
Dec-04	0.39	0.9	0.0077	0.0008	0.0070	-4.9683
Jan-05	0.47	1.04	0.0023	0.0003	0.0069	-4.9724
Feb-05	0.46	1.03	0.00995	0.0012	0.0070	-4.9653
Mar-05	0.43	1.06	0.012333	0.0015	0.0071	-4.9538
Apr-05	0.35	0.87	0.013	0.0013	0.0071	-4.9495
May-05	0.31	0.8	0.013	0.0012	0.0072	-4.9380
Jun-05	0.29	0.82	0.005	0.0005	0.0069	-4.9830
Jul-05	0.27	0.84	0.00795	0.0008	0.0067	-4.9989
Aug-05	0.26	0.88	0.0072	0.0007	0.0067	-5.0069
Sep-05	0.26	0.94	0.014	0.0015	0.0049	-5.3214
Oct-05	0.25	0.84	0.0079	0.0008	0.0010	-6.9068
Nov-05	0.27	0.86	0.031	0.0031	0.0011	-6.7846
Dec-05	0.54	1.09	0.0033	0.0004	0.0011	-6.8133
				AVG	0.0037	-5.8072
				STDEV	0.0023	0.7142
				99.87th %ile	0.0106	**0.0256**
				Distribution	Normal	Lognormal

Note: If mercury effluent concentration is non-detect, the detection limit is used in the calculation.
If there are more than one Hg effluent data in a month, the average Hg concentration for that month is used.

Appendix F-6
Discharger's Infeasibility Analysis

C&H SUGAR COMPANY, INC.
Elizabeth M. Crowley
Environmental Compliance Manager

January 10, 2007

Ms. Tong Yin
California Regional Water Quality Control Board -
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Infeasibility Analysis – C&H Sugar Company, Inc. and Crockett Services District, Crockett, California, File #2119.1006 – C&H Sugar Company, Inc.

Dear Ms. Yin

Pursuant to the requirements of the State Implementation Policy (SIP), C&H has prepared an Infeasibility Analysis to address with the draft TO's Water Quality Based Effluent Limits (WQBELs) for selenium cyanide and mercury from the C&H Sugar Company, Inc., Crockett Sanitary Department (CSD) and Philip F. Meads Water Treatment Plant ("the JTP"). Based on our analysis, it is infeasible for the JTP to achieve compliance with the proposed WQBELs for selenium, cyanide and mercury prior to issuance of the permit. Therefore, interim limits will be required for these constituents. Details of our analysis are presented below.

Background

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California, known as the State Implementation Policy (SIP), establishes statewide policy for National Pollutant Discharge Elimination System (NPDES) permitting. The SIP provides for the situation where it is not feasible or reasonable to impose a WQBEL derived from the California Toxics Rule (CTR) or Basin Plan objective on an existing NPDES discharger without sufficient time to evaluate and implement compliance options. The SIP allows for the adoption of interim limits and a schedule to come into compliance with final WQBELs in such cases. To qualify for interim limits and a compliance schedule, the SIP provides dischargers with the ability to demonstrate that it is infeasible to achieve immediate compliance with the WQBELs.

Pursuant to Section 2.1 of the SIP the following information is provided to support a finding of infeasibility for the JTP:

(a) Documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;

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(b) Documentation of source control and/or pollution minimization efforts currently underway or completed;
(c) A proposed schedule for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., JTP upgrades); and
(d) A demonstration that the proposed schedule is as short as practicable.

An additional consideration, while WQBELs have been presented in the draft Tentative Order No. R2-2006-XXX (draft TO), Site Specific Objectives (SSOs) for cyanide and total maximum daily loads (TMDLs) for mercury are likely to lead to different final WQBELs for these chemicals. Nevertheless, the SSO and TMDL may not be completed in timeframe that would obviate the need for compliance with the final WQBELs in the draft TO. Therefore, interim limits are necessary for these constituents.

Infeasibility Analysis

Pollutants to be Evaluated

An Infeasibility Analysis has been performed to ascertain whether is it infeasible to comply with the WQBELS provided in the draft TO by the California Regional Water Quality Control Board - San Francisco Bay Region (Regional Board). The pollutants for which C&H has found it infeasible to achieve WQBELs prior to issuance of the permit are:

- Selenium;
- Mercury; and
- Cyanide.

Effluent Limitation Attainability

Statistical analysis of self-monitoring data collected from January 2002 thru December 2005 was conducted to evaluate whether is it feasible to comply with the WQBELs for selenium, cyanide and mercury. Statistical confirmation of the infeasibility to comply with the WQBELs is attained if the mean, 95th percentile or 99th percentile exceeds the long-term average (LTA), average monthly effluent limitation (AMEL) or maximum daily effluent limitation (MDEL), respectively. Table 1, shown below, summarizes the statistical analysis and shows that it is infeasible to immediately comply with the WQBELs for selenium, cyanide and mercury.

Table 1: Summary of Feasibility Analysis

Constituent (Discharge Location)	Mean vs. LTA (µg/l)	95th vs. AMEL (µg/l)	99th vs. MDEL (µg/l)	Feasible to Comply
Mercury (001)	0.018>0.01	0.05>0.018	0.089>0.046	No
Mercury (002)	0.019>0.0035	0.13>0.012	0.4>0.038	No
Selenium (001)	8.4>2.3	18>3.9	22>8.7	No
Cyanide (001)	0.66<2.0	MEC=4>AMEL=3.2		No
Cyanide (002)	4.8>0.3	15>2.9	19>6.4	No

A. <u>Documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts.</u>

<u>Pollutant Source Identification</u>

An investigation into potential sources of selenium, cyanide and mercury has been conducted for the non-contact cooling water effluent (E-001). An investigation into potential sources of cyanide and mercury has also been conducted for effluent from the JTP (E-002). Effluent from Discharge Point 002 (E-002) consists of treated wastewater from the C&H plant and treated sewage from CSD (treated wastewater).

i. Selenium, cyanide and mercury in non-contact cooling water effluent (E-001)

A *Water Intake Study* (C&H, 2006) was conducted to identify potential sources of selenium, cyanide and mercury in the non-contact cooling water effluent (E-001). The paired t-test statistical method was selected to evaluate the one to one relationship between the corresponding influent and effluent data collected between February 16, 2002 and July 16, 2004. Statistical analysis of influent (I-1) and effluent (E-001) data revealed: no statistically significant difference (at 95 percent confidence) between the influent and effluent data. In some instances the influent data was significantly higher than effluent data. Hence, the investigative efforts have concluded that the source of selenium, cyanide and mercury in effluent from E-001 is the influent water.

ii. Cyanide in treated wastewater (E-002)

- Wastewater Treatment

Cyanide is formed in wastewater treatment plants as a by-product of disinfection processes, such as chlorination.

- Matrix Interferences

Detection of cyanide has been associated with matrix inferences from salts. Cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environmental Research Foundation.

iii. Mercury in treated wastewater (E-002)

Source investigation efforts have revealed that mercury is not used in any process at the C&H plant. However, potential sources have been identified for mercury in effluent:

- Atmospheric sources of mercury

As stated in the *Waste Minimization Plan Annual Report* submitted on June 28, 2002 mercury is present in the ambient air and is a potential source to storm water and the open treatment basins at the JTP. In addition, mercury is a potential contaminant introduced during low-level mercury sample collection (C&H and CVSD, Waste Minimization Plan, Quarterly Report #13: June-August, 2004) and subsequent analysis using EPA Method 1631.

California Air Resources Board conducted an investigation into the concentration of mercury in ambient air at the John Swett High School in the Crockett community. Analytical data collected at the John Swett High School revealed ambient air mercury concentrations at 1.5 nanograms per cubic meter (ng/m^3), which could contribute mercury to the wastewater samples.

- Mercury in East Bay Municipal Utility District Water

The East Bay Municipal Utilities District (EBMUD) regularly conducts analyses of mercury in the water supply. EBMUD data has previously shown that there are pollutants present in the water supply to the C&H plant (C&H Waste Minimization Plan Quarterly Report, August 2001). However, EBMUD data for mercury has a reporting limit of 2 micrograms per liter (µg/l), which is above the 0.038 µg/l MDEL presented in the draft TO.

- Mercury in domestic wastewater

Domestic wastewater has also been identified as a potential source of mercury for the JTP. The average residential source has been estimated to discharge 0.24 µg/l of mercury from: human waste; laundry graywater; thermometers; contact lens solution; household products; food wastes; and other identified sources.

B. Documentation of source control and/or pollution minimization efforts currently underway or completed.

The existing pollution prevention activities have been designed to reduce discharge of pollutants, including mercury. However, the efforts have not achieved a level of control or minimization that would meet the Draft TO's WQBELs. An analysis of the existing and ongoing potential pollution prevention measures is presented below. Cyanide had not previously been anticipated to be a pollutant of concern in effluent from E-002; therefore source control actions targeting cyanide have not been implemented.

Intake Water Study

The Intake Water Study concluded that the source of selenium, cyanide and mercury in effluent from E-001 is the influent water. Therefore, source control and/or pollution minimization efforts were not necessary for E-001.

Wet Weather Preparedness Program

A yearly checklist for inspection of pump station facilities and removal of grit from the collection system, including contributions of mercury, is prepared prior to each wet-weather season (CVSD Waste Minimization Plan Annual Report, 2003).

Tank and Force Main Cleaning

Mud, sand and other solids with potential for contribution of mercury was removed from the CSD equalization tank and 3,130 lineal feet of force main during 2003 (CVSD Waste Minimization Plan Annual Report, 2003). Additional surge tank solids were removed from the JTP in 2004 by C&H contractors.

Community Outreach Program

CSD has been implementing a community outreach program to inform the local community regarding the development and implementation of its pretreatment program. The outreach program is designed to educate the community regarding actions that they can take to help reduce pollutant loads and the cost for addressing the pollutants. The outreach program includes:

- a thermometer exchange program offering digital fever thermometers in trade for any devices containing mercury (CVSD Waste Minimization Plan, December – February 2004); and

- a web site to emphasize the importance of source control in the home and business, including the thermometer exchange program (CVSD Waste Minimization Plan, March - May 2004).

Outreach and Training

The C&H plant provides outreach and training to employees and contractors handling, using and disposing of materials that may contain mercury (C&H Waste Minimization Plan Annual Submittals, 2002).

Additional efforts were made by the C&H Environmental Department to contact and alert the John Swett High School Science Department Chairperson and the local dental office. In once instance the Dental office had just had their mercury trap serviced, but it had not been properly reinstalled. The correction was made after C&H issued the alert.

Mercury Source Investigation

A mercury source investigation was conducted by the C&H plant and revealed that mercury is present in equipment switches, laboratory thermometers, and fluorescent light bulbs. The equipment, thermometers and fluorescent light bulbs containing mercury are completely enclosed and do not expose the mercury under usual circumstances. Mercury-containing items that are removed are handled and manifested as hazardous waste for proper disposal (C&H Waste Minimization Plan Quarterly Report, August 2001).

Atmospheric Mercury

Field blanks were collected for mercury analysis during self-monitoring from January 2002 through December 2005. The maximum concentration of mercury in the field blank samples was reported at 0.021 micrograms per liter (µg/l).

C. A proposed schedule for additional or future source control measures, pollutant minimization actions, or waste treatment (e.g., JTP upgrades).

Investigative studies have concluded that the source of selenium, cyanide and mercury in effluent from E-001 is the intake water. Therefore, additional source control measures are not feasible.

Additional source control measures to address cyanide and mercury in effluent from E-002 will be evaluated during the next three years, i.e., prior to 2010. A discussion of the proposed activities is presented below.

i. Data Validation (Second Quarter 2007 to Third Quarter 2007)

Before additional efforts are taken to implement studies or control measures for cyanide and mercury, studies regarding the anticipated effluent concentrations will be conducted.

- Mercury in Field Blanks

Mercury field blanks will be used to identify false positives from ambient air contamination to assess data reliability, pursuant to USEPA Method 1631 Revision D. Consistent with Section 12.5.2 of USEPA Method 1631 Revision D the concentration of mercury in the method blanks or field blanks associated with the sample may be subtracted from the results for that sample, or must be subtracted if requested or required by a regulatory authority or in a permit.

- Cyanide Matrix Interference

As cyanide is reported to be an artifact of matrix inferences associated with the analytical protocol, matrix interferences studies will be conducted to quantify the contribution of cyanide from interference.

ii. Source Characterization (Fourth Quarter 2007 to First Quarter 2008)

Additional source characterization will be conducted if the results of the data validation reveal that the cyanide or mercury is above the final WQBELs. A survey will be conducted of potential dischargers of high concentrations of detergents, e.g., nursing homes, hospitals, car washes, pet grooming facilities. Sampling will be conducted to characterize contributions from selected businesses.

iii. Source Control (Second Quarter 2008 to Fourth Quarter 2008)

If the comprehensive source identification confirms that source control measures are required, appropriate source control measures will be identified. Alternative treatment methods for cyanide and mercury will be evaluated if source control does not reduce E-002 concentrations to meet the final WQBELs.

iv. Treatment Evaluation (First Quarter 2009 to Second Quarter 2009)

The JTP will evaluate end-of-pipe treatment options is source characterization does not meet final WQBELs for cyanide and mercury. Preliminary results of the source identification study will be used to screen potential treatment technologies and select candidate processes for further engineering development.

v. Construct Treatment System (Second Quarter 2009 to Second Quarter 2010)

Based on the treatment evaluation, appropriate treatment technology(s) will be pilot-tested. Following pilot-testing, design of a full-scale treatment system will be conducted. Subsequently, equipment would be procured and installed.

D. A demonstration that the proposed schedule is as short as practicable.

The Intake Water Study demonstrated that the source of selenium, cyanide and mercury in effluent from E-001 is the intake water. Final effluent limits for mercury will be derived from the waste load allocation established under the TMDL. The final WQBEL for mercury is projected to be changed based on the results of the TMDL and waste load allocation. Similarly, the SSO for cyanide has been approved by the Regional Board. Adoption of the SSO for cyanide is anticipated to result in higher final WQBELs. As treatment for the intake water is infeasible, the three year schedule, i.e., March 2007 to April 2010, is the shortest practicable to allow either the Regional Board to adopt the SSO for cyanide and the TMDL for mercury or develop appropriate final WQBELs based on intake water quality.

The discharge monitoring data show that the calculated 95th percentile values for mercury and the maximum estimated concentration (MEC) for cyanide from E-002 exceed the AMELs developed for these constituents. Therefore, additional work must be undertaken to comply with the final WQBELs presented in the draft TO.

It is likely that mercury in E-002 originates from ambient air and domestic wastewater. Data validation and source investigation are to be conducted to confirm and quantify matrix inference contributions of cyanide. Given the limited information on the source(s) of these pollutants it is unknown what additional actions and measures may be necessary to meet the final WQBELs. Furthermore, if the JTP cannot achieve compliance though pollution prevention alone, then the treatment involving yet-to-be defined innovative technology will be needed. Given the complexity and unknown variables, the three year schedule to conduct investigations, identify, pilot test, design, construct and commission facilities to comply with the final WQBELs is the shortest practicable and is consistent with the California Toxics Rule (CTR), SIP and Water Quality Control Plan – San Francisco Bay Region (Basin Plan). As noted above the three-year schedule should allow the Regional Board to adopt the SSO for cyanide and the TMDL for mercury, which are anticipated to result in higher WQBELs for E-002.

Summary

This evaluation indicates that immediate compliance with projected final WQBELs for selenium, cyanide and mercury is not feasible. Based on the infeasibility of immediate compliance, the draft TO should include interim performance-based limits. Compliance schedules are needed to allow time for completion of activities that include TMDL/waste load allocation (WLA) development, approval of site-specific water quality objectives (WQOs) (where applicable), adjustments of WQBELs to confirm the WLAs and revised site-specific WQOs (as necessary), source characterization and evaluation of source control measures, engineering, installation and commissioning of end-of-pipe wastewater treatment facilities. The JTP will implement the actions listed above for the constituents receiving interim limits.

Please contact me or Peter M. Krasnoff, P.E., of WEST, if you have any questions or wish to discuss the findings.

Sincerely,

Elizabeth M. Crowley

cc: CSD

Encl.

Appendix F-7
Discharger's Intake Water Credit Request

C&H SUGAR COMPANY, INC.
Elizabeth M. Crowley
Environmental Compliance Manager

January 5, 2006

Ms. Tong Yin
California Regional Water Quality Control Board -
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Intake Water Credit, C&H Sugar Company, Inc. and Crockett Services District
Crockett, California, File #2119.1006 – C&H Sugar Company, Inc.

Pursuant to your request of January 3, 2007 and our ongoing discussions regarding the renewal of the National Pollution Discharge Elimination System (NPDES) permit for C&H and the joint CSD/C&H Sugar discharge, C&H Sugar is submitting the attached supplemental monitoring data, and formally requesting an intake water credit for: arsenic; 2,3,7,8-TCDD-TEQ (TCDD-TEQ); and bis(2-ehtylhexyl)phthalate at the C&H Sugar discharge location E-001. In addition, we are providing an updated statistical analysis for cyanide at M-INF-001 (I-1) using revised method detection limits.

Background

As part of the permit renewal process, the California Regional Water Quality Control Board - San Francisco Bay Region (Regional Board) undertook a Reasonable Potential Analysis (RPA) that identified certain chemicals with the potential to be present in the non-contact cooling water effluent (E-001) above water quality based effluent limits (WQBELs). These chemicals included: arsenic, copper; lead; mercury; nickel; selenium; zinc; cyanide; TCDD-TEQ; and bis(2-ehtylhexyl)phthalate.

Based on statistical analysis of influent (I-1) and effluent (E-001) data collected at C&H between February 16 2002 and July 16, 2004, C&H formally requested an intake water credit on August 6, 2006. Water intake credits were requested for: copper, lead, mercury, selenium, zinc and cyanide. The Regional Board approved water intake credits for: copper; lead; mercury, selenium and zinc. In addition, the Regional Board requested supplemental statistical evaluations for arsenic; TCDD-TEQ; and bis(2-ehtylhexyl)phthalate.

Data Analysis

Effluent monitoring data from E-001 indicated that arsenic, TCDD-TEQ; and bis(2-ehtylhexyl)phthalate were detected up to 45 micrograms per liter (µg/l), 0.056 picograms per liter (pg/l) and 4 µg/l respectively in the non-contact cooling water. TCDD was not reported above a maximum method detection limit of 0.847 pg/l.

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Influent monitoring data from I-1 indicated that arsenic, TCDD-TEQ; and bis(2-ehtylhexyl)phthalate were detected up to 55 micrograms per liter (µg/l), 0.039 picograms per liter (pg/l) and 0.8 µg/l, respectively. TCDD was not reported above a maximum method detection limit of 0.847 pg/l. Based on this monitoring data, the intake water quality exceeds WQBELs for arsenic and TCDD-TEQ. In fact, given the levels of these chemicals in the intake water, it would be difficult to meet final WQBELs for arsenic at 36 µg/l, and TCDD-TEQ at $1.4X10^{-8}$ µg/l with BAT/BCT technology applied to just the intake water. More importantly, it is not possible for C&H to address source reduction associated with these constituents because these chemicals are not used in any of the C&H's processes, and elevated concentrations appear to be solely an artifact of intake water.

Analysis of the monitoring data demonstrates that there is no statistically significant difference between the I-1 and E-001 analytical data. Intake and discharge samples were collected contemporaneously between February 2002 and July 2004 for arsenic; TCDD-TEQ; and bis(2-ehtylhexyl)phthalate. Statistical analysis was performed with paired t-tests using the I-1 and E-001 monitoring data to assess whether influent non-contact cooling water quality (I-1) was statistically different from non-contact cooling water discharge from E-001. The paired t-test statistical method was selected to evaluate the one to one relationship between the corresponding influent and effluent values.

Statistical analysis of the monitoring data using the paired t-test did not reveal a significant difference at 95 percent confidence between I-1 and E-001 data for arsenic ($p=0.305$); TCDD-TEQ ($p=0.219$); and bis(2-ehtylhexyl)phthalate ($p=0.147$).

Cyanide Method Detection Limit at I-1

A review of I-I cyanide analytical data and consultation with Caltest Laboratory revealed that the method detection limit for the inflow was of 0.9 µg/l and that the method-reporting limit for the inflow was 3 µg/l. A revised statistical analysis of the E-001 and I-1 analytical data was conducted using the updated information. Statistical analysis for cyanide revealed no significant difference at the 95 percent confidence between I-1 and E-001 data ($p=0.360$).

We appreciate the opportunity to provide input at this time. Please contact me if you have questions or wish to discuss our comments.

Sincerely,

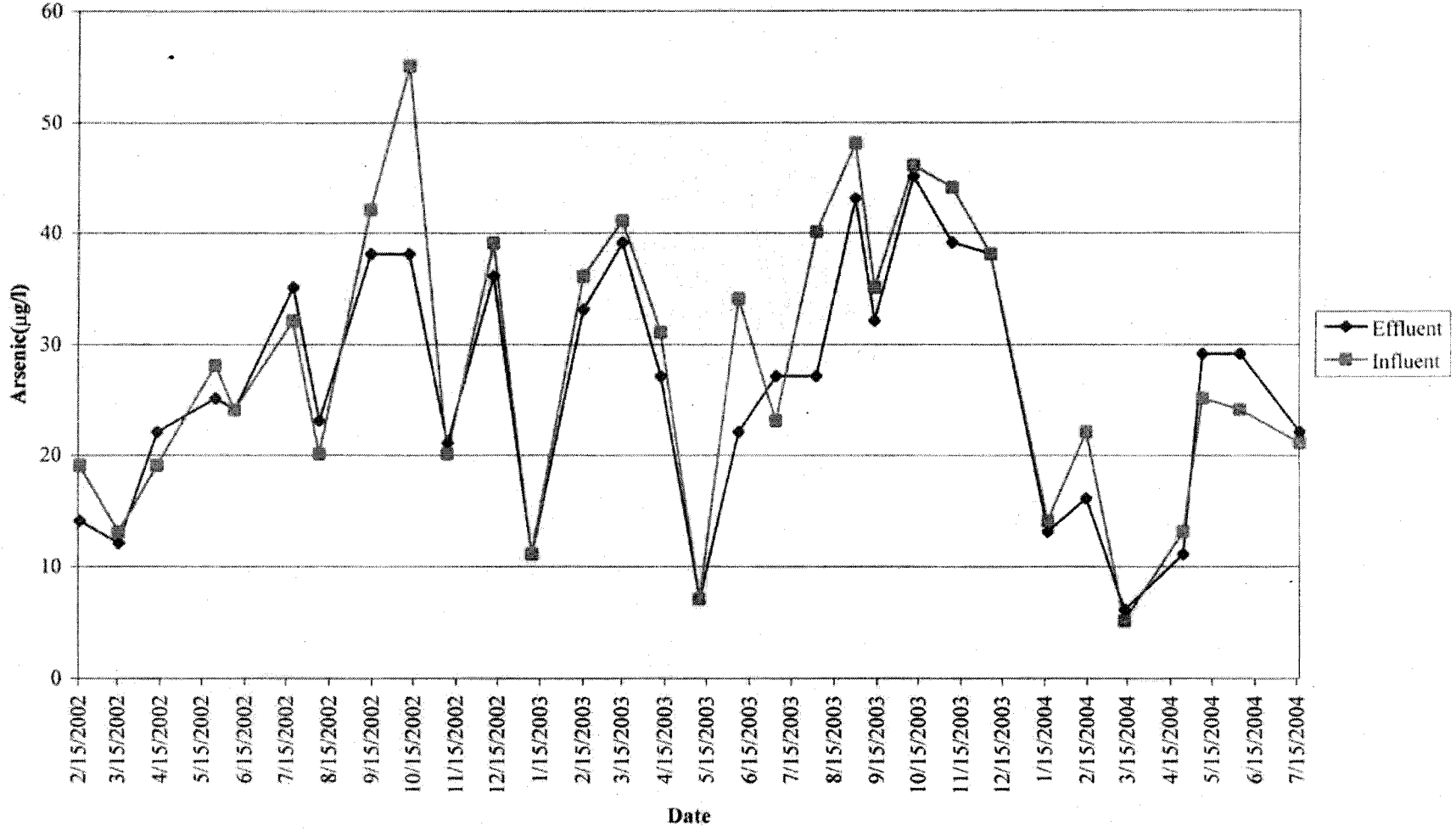
Elizabeth M. Crowley

Attachment

Draft Privileged and Confidential Attorney Client Work Product

Influent and Effluent Concentration with Time

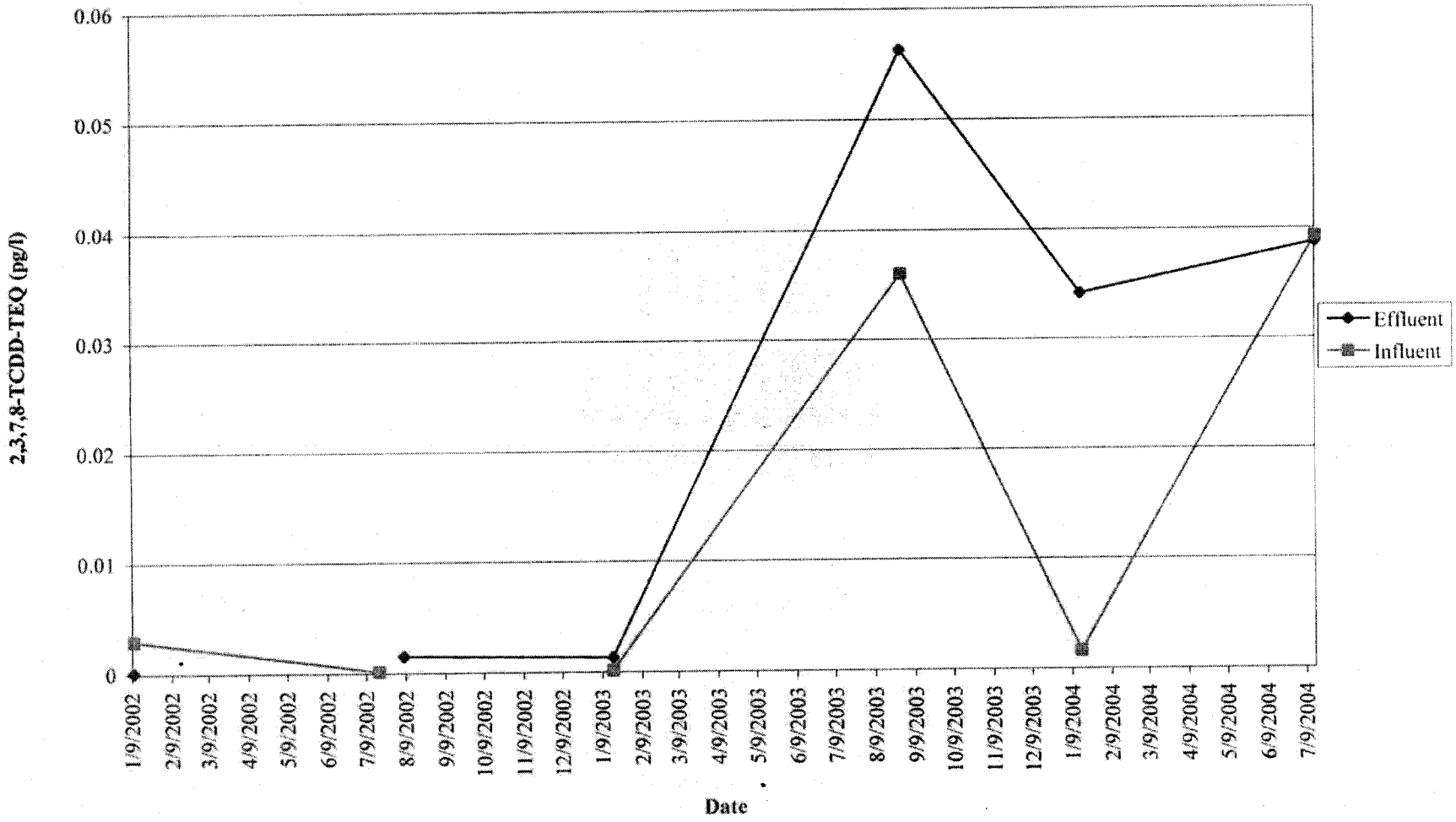
No significant difference between influent and effluent
p = 0.305 at 95 percent confidence using paired t-test



Draft Privileged and Confidential Attorney Client Work Product

Influent and Effluent Concentration with Time

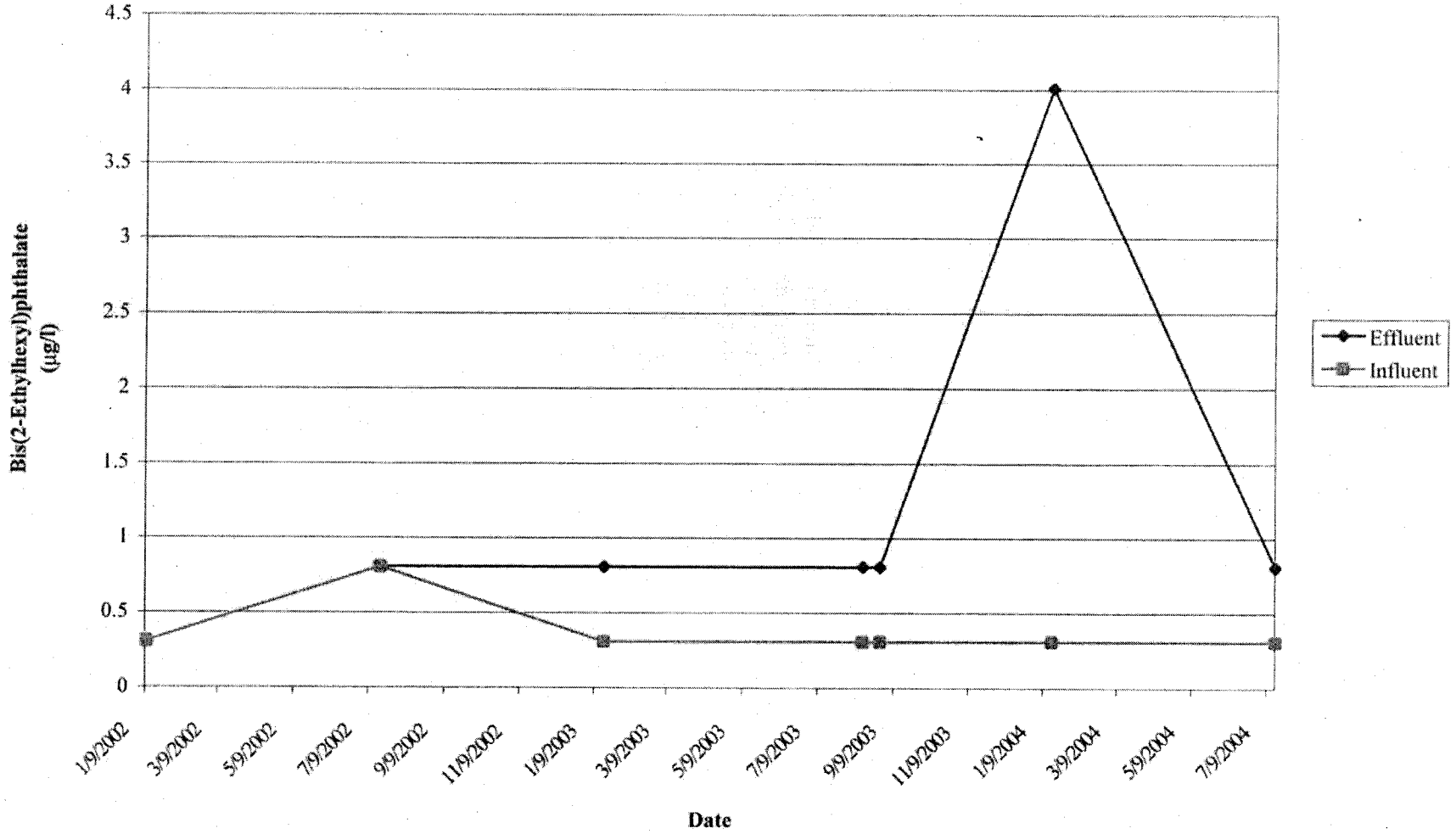
No significant difference between influent and effluent
p = 0.219 at 95 percent confidence using paired t-test



Draft Privileged and Confidential Attorney Client Work Product

Influent and Effluent Concentration with Time

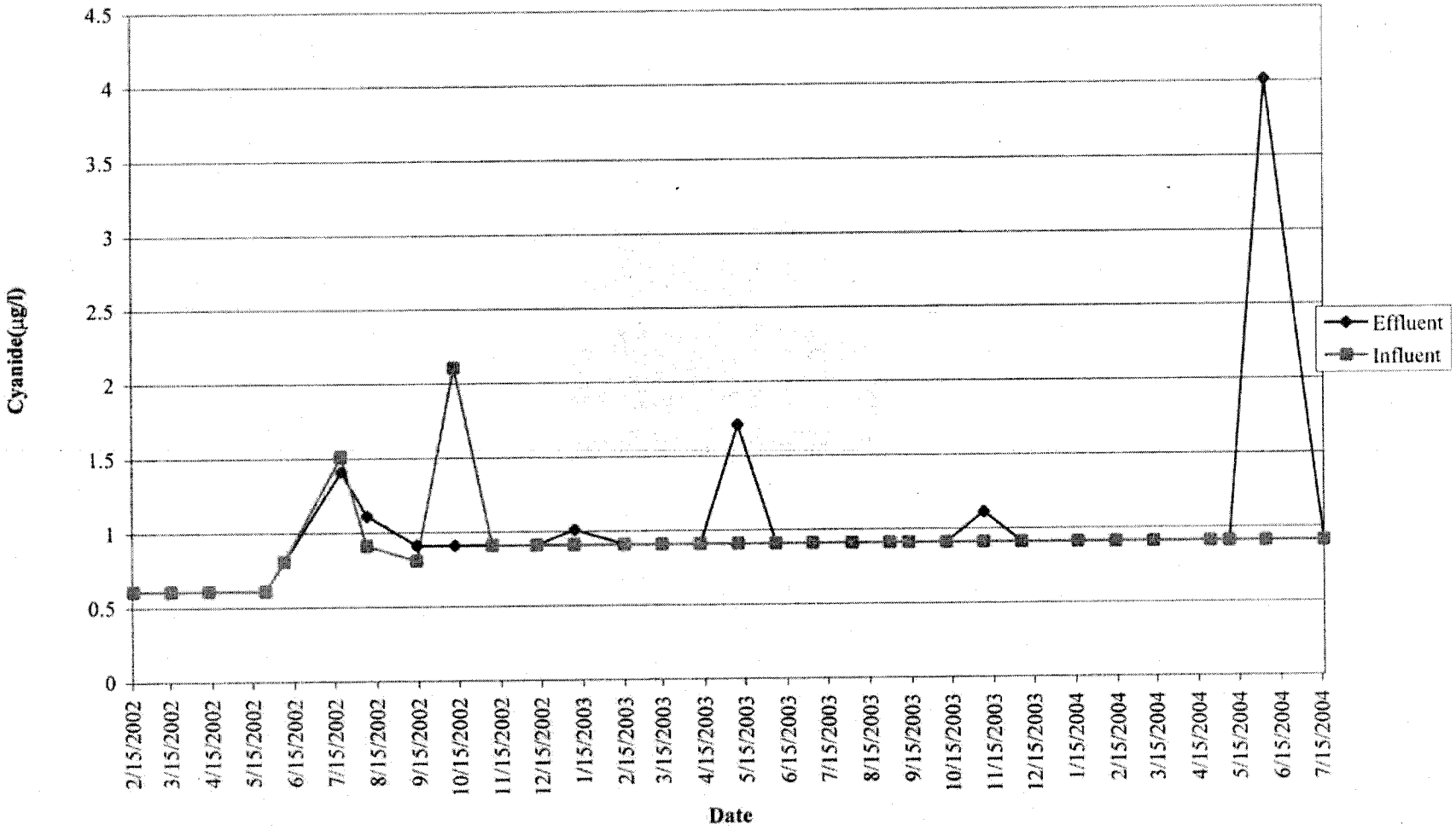
No significant difference between influent and effluent
p = 0.147 at 95 percent confidence using paired t-test



Draft Privileged and Confidential Attorney Client Work Product

Influent and Effluent Concentration with Time

No significant difference between influent and effluent
p = 0.360 at 95 percent confidence using paired t-test



C&H SUGAR COMPANY, INC.
Elizabeth M. Crowley
Safety & Environmental Compliance Manager

August 7, 2006

VIA emailed pdf & Certified U.S. Mail #7005 1160 0004 5058 5135

Ms. Tong Yin
California Regional Water Quality Control Board -
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Re: Intake Water Credit
C&H Sugar and Crockett Services District
Crockett, California
File #2119.1006 – C&H Sugar Company, Inc.

Dear Ms. Yin:

Pursuant to your request of August 2, 2006 and our ongoing discussions regarding the renewal of the National Pollution Discharge Elimination System (NPDES) permit for C&H and the joint CSD/C&H Sugar discharge, C&H Sugar is submitting the attached supplemental monitoring data, and formally requesting an intake water credit for the C&H Sugar discharge location E-001 based on the information contained in this letter and the attached data. It is our understanding that the California Regional Water Quality Control Board – San Francisco Bay Region ("Regional Board") will evaluate this request and data prior to the issuance of an updated draft NDPES permit.

As part of the permit renewal process, the Regional Board undertook a Reasonable Potential Analysis (RPA) that identified certain chemicals with the potential to be present in the non-contact cooling water effluent (E-001) above water quality based effluent limits (WQBELs). These chemicals included: arsenic, copper, lead, mercury, nickel, selenium and 2,3,7,8-TEQ. The RPA appropriately narrowed the list to mercury, selenium and cyanide as the chemicals with potential to be present in the discharge above WQBELs.

As you know, C&H's existing NPDES permit regulates the discharge at E-001 based on the net increase of Biochemical Oxygen Demand (BOD) above influent. C&H supports a continuation of this approach, as it is consistent with the analysis of the monitoring data from 2002 to 2004 that reflects no statistical difference between the intake and the effluent

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non-contact cooling water discharged at E-001. Details of the analysis and justification for the intake water credit are provided below.

Intake Water Allowance

The Regional Board has developed preliminary effluent limits for mercury, selenium and cyanide for the discharge E-001, i.e., the non-contact cooling water discharge. As presented in our July 10, 2006 comments on the Regional Board's Reasonable Potential Analysis (RPA), this is a discharge of non-contact cooling water and C&H's process are not a suspected source of the identified chemicals. C&H should not have to address pollutants present in the intake from the receiving water body. As provided in the State Implementation Policy, Section 1.4.4, the Regional Board may consider intake water quality when establishing WQBELs, where:

"(1) The observed maximum ambient background concentration, as determined in section 1.4.3.1, and the intake water concentration of the pollutant exceeds the most stringent applicable criterion/objective for that pollutant;

(2) The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the RWQCB, SWRCB, and U.S. EPA [TMDL; not applicable];

(3) The intake water is from the same water body as the receiving water body. The discharger may demonstrate this condition by showing that:

(a) the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that of the intake water;
(b) there is a direct hydrological connection between the intake and discharge points;
(c) the water quality characteristics are similar in the intake and receiving waters; and
(d) the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger.

The RWQCB may also consider other factors when determining whether the intake water is from the same water body as the receiving water body;

(4) The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and

(5) The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body."
As you know, TMDLs are not applicable in this instance.

As the analysis presented below demonstrates, these conditions have been met[1]. Therefore, we request the Regional Board establish effluent limitations for the non-contact cooling water discharge from E-001 to allow discharge of the mass and concentrations equivalent to the influent water. Due to the inherent variability in laboratory analysis, and consistent with the SIP, we also request that the allowance be based on the arithmetic mean of the influent and effluent water quality.

The monitoring data indicated that mercury, selenium and cyanide were detected up to 0.05 micrograms per liter (µg/l), 20 µg/l, 2.1 µg/l, respectively in the influent non-contact cooling water. The WQBEL for mercury, selenium and cyanide have been identified by the Regional Board as 0.025 µg/l, 5 µg/l and 1 µg/l, respectively. Based on this monitoring data, the intake water quality exceeds WQBELs. In fact, given the levels of these chemicals in the intake water, it would be difficult to meet final WQBELs for mercury, selenium and cyanide with BAT/BCT technology applied to just the intake water. More importantly, it is not possible for C&H to address source reduction associated with these constituents because these chemicals are not used in any of the C&H's processes, and elevated concentrations appear to be the result of concentrations in the intake water.

On the second applicable criteria, the discharge point is hydrologically connected to the intake source. All of the non-contact cooling intake water is from the Carquinez Strait and the intake structure is located approximately 500 feet upstream of discharge point E-001. As 100 percent of the water discharged at E-001 is from the same receiving water body, the intake water pollutants would have reached the vicinity of the discharge point in the receiving water within a reasonable time and with the same effect had it not been diverted by its use for cooling.

This latter conclusion is supported by a statistical analysis of the monitoring data that demonstrates that there is no change in water quality from its use as non-contact cooling water. Intake and discharge samples were collected contemporaneously 32 times between February 2002 and July 2004. Statistical analysis was performed with paired t-tests using the I-1 and E-001 monitoring data to assess whether influent non-contact cooling water quality (I-1) was statistically different from non-contact cooling water discharge from E-001. The paired t-test statistical method was selected to evaluate the one to one relationship between the corresponding influent and effluent values.

Statistical analysis of the monitoring data using the paired t-test did not reveal a significant difference at the 95 percent confidence between I-1 and E-001 data for selenium as well as copper, chromium, and zinc. The statistical analysis, however, revealed that influent water quality (I-1) was significantly higher at the 95 percent confidence level than the discharge from E-001 for mercury, as well as cadmium, lead, and silver. The only chemical that analysis suggested might appear to be present at a statistically higher concentration in the

[1]The U.S. EPA NPDES permit program also allows credit for pollutants in intake water in cases where the facility is faced with situations in which limits are difficult or impossible to meet with Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT). 40 Code of Federal Regulations §122.45(g)

effluent than in the influent was cyanide. However, there are no sources of cyanide in the system of non-contact cooling water that discharges at E-001. Thus, the analytical data appears to be reflecting something other than a contribution from C&H. The statistically significant difference for cyanide appears attributable to inherent variability in laboratory analytical recoveries and bias from varying laboratory-reporting limits, i.e., the laboratory-reporting limit for cyanide at I-1 was 0.003 µg/l compared to 0.9 µg/l at E-001. As the statistical analysis shows, without an intake credit for the non-contact cooling water intake, the discharge would be inappropriately regulated for pollutants.

We appreciate your consideration of our request and for the opportunity to provide input at this time. Please contact me if you have questions or wish to discuss our comments.

Sincerely,

Elizabeth M. Crowley

Encl.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

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ATTACHMENT 26

ORDER No. R2-2007-0077
NPDES No. CA0038849

WASTE DISCHARGE REQUIREMENTS FOR MUNICIPAL AND INDUSTRIAL WASTEWATER DISCHARGES OF MERCURY TO SAN FRANCISCO BAY

The following Dischargers are subject to waste discharge requirements as set forth in this Order, for the purpose of implementing the San Francisco Bay Mercury Total Maximum Daily Load (TMDL) wasteload allocations for municipal and industrial wastewater discharges to San Francisco Bay and its contiguous bay segments:

Table 1. Discharger Information

Discharger **Name of Facility** **Facility Address**	See attached Tables 1A and 1B for Discharger Information.
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified these discharges as either major or minor discharges as indicated in Tables 1A and 1B.	

Discharges from the discharge points identified below are subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
See attached Tables 2A and 2B for Discharge Locations.				

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**November 1, 2007**
This Order shall become effective on:	**January 1, 2008**[1]
This Order shall expire on:	**December 31, 2012**

[1] This Order becomes effective on the latter of this date or on the 1st (first) of the month after the TMDL for Mercury in San Francisco Bay becomes effective, except that if the San Francisco Bay Mercury TMDL is not approved by U.S. EPA or is approved in a form that is substantially different than was approved by the State Water Board on July 17, 2007, and implemented herein, this Order shall not become effective.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above.

_____

Bruce H. Wolfe, Executive Officer

Table 1A. Municipal Discharger Information

Discharger	Name of Facility	Facility Address	Minor/ Major
American Canyon, City of	Wastewater Treatment and Reclamation Facility	151 Mezzetta Court American Canyon, CA 94503 Napa County	Major
Benicia, City of	Benicia Wastewater Treatment Plant	614 East Fifth Street Benicia, CA 94510 Solano County	Major
Burlingame, City of	Burlingame Wastewater Treatment Plant	1103 Airport Boulevard Burlingame, CA 94010 San Mateo County	Major
Calistoga, City of	Dunaweal Wastewater Treatment Plant	1185 Dunaweal Lane Calistoga, CA 94515 Napa County	Minor
Central Contra Costa Sanitary District	Central Contra Costa Sanitary District Wastewater Treatment Plant	5019 Imhoff Place Martinez, CA 94553 Contra Costa County	Major
Central Marin Sanitation Agency	Central Marin Sanitation Agency Wastewater Treatment Plant	1301 Andersen Drive San Rafael, CA 94901 Marin County	Major
Contra Costa County Sanitation District No. 5, Port Costa	Port Costa Wastewater Treatment Plant	End of Canyon Lake Drive Port Costa, CA 94569 Contra Costa County	Minor
Delta Diablo Sanitation District	Wastewater Treatment Plant	2500 Pittsburg-Antioch Highway Antioch, CA 94509 Contra Costa County	Major
East Bay Dischargers Authority; Cities of Hayward and San Leandro; Oro Loma Sanitary District; Castro Valley Sanitary District; Union Sanitary District; Livermore-Amador Valley Water Management Agency; Dublin San Ramon Services District; and City of Livermore.	EBDA Common Outfall	EBDA Common Outfall 14150 Monarch Bay Drive San Leandro, CA 94577 Alameda County	Major
	Hayward Water Pollution Control Facility		
	San Leandro Water Pollution Control Plant		
	Oro Loma/Castro Valley Sanitary Districts Water Pollution Control Plant		
	Raymond A. Boege Alvarado Wastewater Treatment Plant		
	Livermore-Amador Valley Water Management Agency (LAVWMA) Export and Storage Facilities		
	Dublin San Ramon Services District Wastewater Treatment Plant		
	City of Livermore Water Reclamation Plant		
East Bay Municipal Utilities District	East Bay Municipal Utility District, Special District No. 1 Wastewater Treatment Plant	2020 Wake Avenue Oakland, CA 94607 Alameda County	Major
	Point Isabel Wet Weather Facility	2755 Isabel Street Richmond, CA 94804 Alameda County	Minor
	San Antonio Creek Wet Weather Facility	225 5th Avenue Oakland, CA 94606 Alameda County	Minor

Discharger	Name of Facility	Facility Address	Minor/ Major
	Oakport Wet Weather Facility	5597 Oakport Street Oakland, CA 94621 Alameda County	Minor
East Brother Light Station, Inc.[1]	East Brother Light Station	117 Park Place Point Richmond, CA 94801 Contra Costa County	Minor
Fairfield-Suisun Sewer District	Fairfield-Suisun Wastewater Treatment Plant	1010 Chadbourne Road Fairfield, CA 94534 Solano County	Major
Las Gallinas Valley Sanitary District	Las Gallinas Valley Sanitary District Sewage Treatment Plant	300 Smith Ranch Road San Rafael, CA 94903 Marin County	Major
Marin County (Paradise Cove), Sanitary District No. 5 of	Paradise Cove Treatment Plant	3700 Paradise Drive Tiburon, CA 94920 Marin County	Minor
Marin County (Tiburon), Sanitary District No. 5 of	Wastewater Treatment Plant	2001 Paradise Drive Tiburon, CA 94920 Marin County	Minor
Millbrae, City of	Water Pollution Control Plant	400 East Millbrae Avenue Millbrae, CA 94030 San Mateo County	Major
Mt. View Sanitary District	Mt. View Sanitary District Wastewater Treatment Plant	3800 Arthur Road Martinez, CA 94553 Contra Costa County	Major
Napa Sanitation District	Soscol Water Recycling Facility	1515 Soscol Ferry Road Napa, CA 94558 Napa County	Major
Novato Sanitary District	The Novato Treatment Plant, The Ignacio Treatment Plant	Novato Treatment Plant: 500 Davidson Street Novato, CA 94945 Ignacio Treatment Plant: 445 Bel Marin Keys Blvd. Novato, CA 94945 Both in Marin County	Major, Major
Palo Alto, City of	Palo Alto Regional Water Quality Control Plant	2501 Embarcadero Way Palo Alto, CA 94303 Santa Clara County	Major
Petaluma, City of	Municipal Wastewater Treatment Plant	950 Hopper Street Petaluma, CA 94952 Sonoma County	Major
Pinole, City of	Pinole-Hercules Water Pollution Control Plant	11 Tennent Avenue Pinole, CA, 94564 Contra Costa County	Major
Rodeo Sanitary District	Rodeo Sanitary District Water Pollution Control Facility	800 San Pablo Avenue Rodeo, CA 94572 Contra Costa County	Major
Saint Helena, City of	City of St. Helena Wastewater Treatment and Reclamation Plant	1 Thomann Lane St. Helena, CA 94574 Napa County	Minor
San Francisco, City and County of, San Francisco International Airport	Mel Leong Treatment Plant, Sanitary Plant	918 Clearwater Drive San Francisco International Airport San Francisco,CA 94128	Major
San Francisco (Southeast Plant), City and County of	Southeast Water Pollution Control Plant	750 Phelps Street San Francisco, CA 94124 San Francisco County	Major

Discharger	Name of Facility	Facility Address	Minor/ Major
San Jose/Santa Clara, Cities of	San Jose/Santa Clara Water Pollution Control Plant	4245 Zanker Road San Jose, CA 95134 Santa Clara County	Major
San Mateo, City of	City of San Mateo Wastewater Treatment Plant	2050 Detroit Drive San Mateo, CA 94404 San Mateo County	Major
Sausalito-Marin City Sanitary District	Sausalito-Marin City Sanitary District Wastewater Treatment Plant	#1 Fort Baker Road Sausalito, CA 94965 Marin County	Major
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[1]	Seafirth Estates Wastewater Treatment Plant	33 Seafirth Place Tiburon, CA 94920 Marin County	Minor
Sewerage Agency of Southern Marin	Wastewater Treatment Plant	450 Sycamore Avenue Mill Valley, CA 94941 Marin County	Major
Sonoma Valley County Sanitary District	Municipal Wastewater Treatment Plant	22675 8th Street East Sonoma, CA 95476 Sonoma County	Major
South Bayside System Authority	South Bayside System Authority Wastewater Treatment Plant	1400 Radio Road Redwood City, CA 94065 San Mateo County	Major
South San Francisco and San Bruno, Cities of	South San Francisco and San Bruno Water Quality Control Plant	195 Belle Air Road South San Francisco, CA 94080 San Mateo County	Major
Sunnyvale, City of	Sunnyvale Water Pollution Control Plant	1444 Borregas Avenue, Sunnyvale, CA 94089 Santa Clara County	Major
US Naval Support Activity, Treasure Island	Wastewater Treatment Plant	681 Avenue M, Treasure island San Francisco, CA 94130-1807	Major
Vallejo Sanitation and Flood Control District	Vallejo Sanitation and Flood Control District Wastewater Treatment Plant	450 Ryder Street Vallejo, CA 94590 Solano County	Major
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	West County Agency Combined Outfall	601 Canal Blvd. Richmond, CA 94804 Contra Costa County	Major
Yountville, Town of	Municipal Wastewater Treatment Plant	7501 Solano Avenue Yountville, CA 94599 Napa County	Minor

[1] This Discharger serves domestic customers but is not a municipal government agency.

Table 1B. Industrial Discharger Information

Discharger	Name of Facility	Facility Address	Minor/ Major
Industrial Wastewater Discharger (Non-Petroleum Refinery):			
C&H Sugar Company Inc. and Crockett Community Services District	Phillip F. Meads Water Treatment Plant	830 Loring Avenue Crockett, CA 94525 Contra Costa County	Major
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	Crockett Cogeneration Plant	550 Loring Avenue Crockett, CA 94525-1232 Contra Costa County	Minor
The Dow Chemical Company	The Dow Chemical Company	901 Loveridge Road Pittsburg, CA 94565 Contra Costa County	Major
General Chemical West, LLC[2]	Pittsburg Plant	501 Nichols Road Pittsburgh, CA 94565 Contra Costa County	Major
GWF Power Systems L. P., Site I	GWF -Site I (E. Third St.) Power Plant	895 East 3rd Street Pittsburg, CA 94565 Contra Costa County	Minor
GWF Power Systems L. P., Site V	GWF - Site V (Nichols Rd) Power Plant	555 Nichols Road Bay Point, CA 94565 Solano County	Minor
Pacific Gas and Electric Company (PG&E)	PG&E Shell Pond	½ Mile Northwest of North Broadway Street Bay Point CA 94565 Contra Costa County	Minor
Rhodia, Inc.	Sulfuric Acid Regeneration Martinez Plant	100 Mococo Road Martinez, CA 94553 Contra Costa County	Major
San Francisco City and County of, San Francisco International Airport	Mel Leong Treatment Plant, Industrial Plant	676 McDonnell Road San Francisco, CA 94128 San Francisco County	Major
Mirant Delta, LLC	Pittsburg Power Plant	Mirant Delta LLC, Pittsburg Power Plant 696 W. 10th Street Pittsburg, CA 94565 Contra Costa County	Major
Mirant Potrero LLC	Potrero Power Plant	Mirant Potrero, LLC, Potrero Power Plant 1201-A Illinois Street San Francisco, CA 94107 San Francisco County	Major
USS-Posco Industries	Pittsburg Plant	900 Loveridge Road Pittsburg, CA 94565 Contra Costa County	Major
Industrial Wastewater Discharger (Petroleum Refinery):			
Chevron Products Company	Richmond Refinery	841 Chevron Way Richmond, CA 94801 Contra Costa County	Major
ConocoPhillips	San Francisco Refinery	1380 San Pablo Avenue Rodeo, CA 94572-1354 Contra Costa County	Major
Shell Oil Products US and Equilon Enterprises LLC	Shell Martinez Refinery	3485 Pacheco Blvd Martinez CA 94553 Contra Costa County	Major

Discharger	Name of Facility	Facility Address	Minor/ Major
Tesoro Refining & Marketing Co.	Golden Eagle Refinery	150 Solano Way Martinez, CA 94553 Contra Costa County	Major
Valero Refining Company	Valero Benicia Refinery	3400 East Second Street Benicia, CA 94510-1005 Solano County	Major

[2] The Regional Water Board adopted Order R2-2007-0065 on August 8, 2007, terminating the individual discharge permit for General Chemical West LLC effective April 1, 2008. This Discharger will cease discharge no later than this date. The requirements of this Order do not apply to this Discharger if the effective date of this Order falls after the Discharger ceases to discharge.

Table 2A. Municipal Discharger Location Information

Discharger	Discharge Point(s)	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
American Canyon, City of	001-S	38º 11' 3.7" N	122º 16' 39.0" W	North Slough
	003-R	38º 11' 5.7" N	122º 16' 44.8" W	Constructed freshwater wetlands
Benicia, City of	E-001	38º 02' 30" N	122º 09' 03" W	Carquinez Strait
Burlingame, City of	E-002[(b)]	37º 39' 55" N	122º 21' 41" W	Lower San Francisco Bay
Calistoga, City of	001	38º 33' 34" N	122º 33' 28" W	Napa River
	002	38º 33' 13" N	122º 33' 40" W	Napa River
Central Contra Costa Sanitary District	001	38º 2' 44" N	122º 5' 55" W	Suisun Bay
Central Marin Sanitation Agency	001	37º 56' 54" N	122º 27' 23" W	Central San Francisco Bay
Contra Costa County Sanitation District No. 5, Port Costa	001	38° 02' 55'' N	122° 10' 56'' W	Carquinez Strait
Delta Diablo Sanitation District	E-001	38º 01' 40" N	121º 50' 14" W	New York Slough
East Bay Dischargers Authority, including City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Livermore-Amador Valley Water Management Agency (LAVWMA), Dublin San Ramon Services District, and City of Livermore	001	37º 41' 40" N	122 º 17' 42" W	Lower San Francisco Bay
EBMUD – Main Wastewater Treatment Plant	E-001	37º 49' 2 " N	122º 20' 55" W	Central San Francisco Bay
EBMUD – Point Isabel Wet Weather Facility	E-001	37°53'43"N	122°19'24"W	Richmond Inner Harbor, part of Central San Francisco Bay
EBMUD – San Antonio Creek Wet Weather Facility	E-002	37°47'30"N	122°15'44"W	Oakland Inner Harbor, Part of Lower San Francisco Bay
East Bay Municipal Utilities District – Oakport Wet Weather Facility	E-003	37°45'39"N	122°12'52"W	Oakland Inner Harbor, part of lower San Francisco Bay
East Brother Light Station, Inc.[(a)]	E-001	37º 57' 48" N	122º 25' 55" W	San Pablo Bay
Fairfield-Suisun Sewer District	E-001	38° 12' 33" N	122° 03' 24" W	Boynton Slough
	E-002	38° 12' 52" N	122° 03' 56" W	Boynton Slough
	E-003	38° 12' 35" N	122° 03' 29" W	Boynton Slough
	E-005	38° 14' 06" N	122° 03' 31" W	Ledgewood Creek
Las Gallinas Valley Sanitary District	E-001	38° 01' 32" N	122° 30' 58" W	Miller Creek
	E-002	38° 01' 36" N	122° 30' 45" W	Miller Creek
Marin County (Paradise Cove), Sanitary District No. 5 of	001	37 º 53' 50" N	122 º 27' 40" W	Central San Francisco Bay
Marin County (Tiburon), Sanitary District No. 5 of	E-001	37º 52' 12" N	122º 27' 5" W	Raccoon Strait, Central San Francisco Bay
Millbrae, City of	E-001	37º 39' 55" N	122º 21' 41" W	Lower San Francisco Bay
Mt. View Sanitary District	E-001	38º 01' 12" N	122º 05' 47" W	Peyton Slough, a tributary to Carquinez Strait
Napa Sanitation District	E-001	38° 14' 09"N	122° 17' 10" W	Napa River
Novato Sanitary District	E-003	38° 03' 36" N	122º 29' 24" W	San Pablo Bay
Palo Alto, City of	E-001	37º 27' 30"N	122º 06' 37" W	An unnamed manmade channel, a tributary to Lower San Francisco Bay

Discharger	Discharge Point(s)	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
	E-002	37º 26' 30" N	122º 06' 45" W	Renzel Marsh Pond, a tributary to Matedero Creek
Petaluma, City of	E-001	38° 12' 33" N	122° 34' 22" W	Petaluma River
Pinole, City of	001	38° 03' 06" N	122° 14' 55" W	San Pablo Bay
	002	38° 00' 47" N	122° 17' 45" W	San Pablo Bay
Rodeo Sanitary District	001	38º 03' 06" N	122º 14' 55" W	San Pablo Bay
Saint Helena, City of	E-001	30° 30'10" N	122º 26' 15" W	Napa River
San Francisco, City and County of, San Francisco International Airport, Sanitary	E-002[(b)]	37° 39' 55" N	122° 21' 41" W	Lower San Francisco Bay
San Francisco (Southeast Plant), City and County of	E-001	37° 44' 58" N	122° 22' 22" W	Lower San Francisco Bay
San Jose/Santa Clara, Cities of	E-001	37° 26' 06"N	121° 57' 08" W	Artesian Slough, a tributary to Coyote Creek and South San Francisco Bay
San Mateo, City of	E-001	37º 34' 50" N	122º 14' 45" W	Lower San Francisco Bay
Sausalito-Marin City Sanitary District	001	37º 50' 37" N	122º 28' 3" W	Central San Francisco Bay
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[1]	001	37º 45' 08" N	122º 28' 08" W	Central San Francisco Bay
Sewerage Agency of Southern Marin	E-001	37° 52' 12" N	122° 27' 5" W	Raccoon Strait
Sonoma Valley County Sanitary District	001	38° 14' 14" N	122° 25' 51" W	Schell Slough, a tributary to the San Pablo Bay
South Bayside System Authority	001	37° 33' 40" N	122° 13' 02" W	Lower San Francisco Bay
South San Francisco and San Bruno, Cities of	E-002[(b)]	37° 39' 55" N	122° 21' 41" W	Lower San Francisco Bay
Sunnyvale, City of	E-001	37° 25' 13" N	122° 1' 0" W	Moffett Channel, a tributary to Guadalupe Slough and South San Francisco Bay
US Naval Support Activity, Treasure Island	E-001	37° 49' 50" N	122° 21' 25" W	San Francisco Bay
Vallejo Sanitation and Flood Control District	E-001	38º 3' 53" N	122 º 13' 42" W	Carquinez Strait
	E-002	38º 5' 23" N	122º 15' 12" W	Mare Island Strait, a tributary to Carquinez Strait
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	E-001	37°54'47"N	122°25'06"W	Central San Francisco Bay
Yountville, Town of	E-001	38° 24' 30''N	122°20'25''W	Napa River

[(a)] This Discharger serves domestic customers but is not a municipal government agency.

[(b)] These Dischargers share the North Bayside System Unit outfall which serves as the combined discharge point E-002 into San Francisco Bay. However, compliance with the requirements of this Order are by each Discharger at its individual compliance station specified in the Monitoring and Reporting Program, Attachment E, of this Order.

Table 2B. Industrial Discharger Location Information

Discharger	Discharge Point	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Wastewater Discharger (Non-Petroleum Refinery):				
C&H Sugar Company Inc. and Crockett Community Services District	002	38º 03' 30" N	122º 13' 28″ W	Carquinez Strait
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	E-001	38º 3' 22" N	122º 13' 5" W	Carquinez Strait
The Dow Chemical Company	E-001	38º 1' 48" N	121º 51' 7" W	New York Slough
General Chemical West, LLC©	E-001	38º 2' 48" N	121º 59' 10" W	Suisun Bay
GWF Power Systems L. P.	E-001	38º 2' 00" N	121º 52' 15" W	New York Slough
GWF Power Systems L. P.	E-001	38º 3' 15" N	121º 59' 15" W	New York Slough
Pacific Gas and Electric Company (PG&E)	E-001	38º 2' 34" N	121º 57' 14" W	Suisun Bay
Rhodia, Inc.	E-001	38º 2' 18" N	122º 7' 1" W	Suisun Bay
San Francisco, City and County of, San Francisco International Airport, Industrial	E-002[(b)]	37º 39', 55" N	122º 21' 41" W	Lower San Francisco Bay
Mirant Delta, LLC	E-001[(a)]	38º 2' 29" N	121º 53' 25" W	Suisun Bay
Mirant Potrero LLC	E-001[(a)]	37º 45' 23" N	122º 22' 52" W	San Francisco Bay
USS-Posco Industries	E-001	38º 1' 48" N	121º 51' 32" W	Suisun Bay
	E-002	38º 1' 51" N	121º 51' 58" W	Suisun Bay
Industrial Wastewater Discharger (Petroleum Refinery):				
Chevron Products Company	E-001	37º 58' 15" N	122º 25' 45" W	San Pablo Bay
ConocoPhillips	E-002	38º 3' 22" N	122º 15' 36" W	San Pablo Bay
Shell Oil Products US and Equilon Enterprises LLC	E-001	38º 1' 56" N	122º 7' 44" W	Carquinez Strait
Tesoro Refining & Marketing Co.	E-001	38º 2' 54" N	122º 5' 22" W	Suisun Bay
Valero Refining Company	E-001	38º 3' 18" N	122º 7' 7" W	Suisun Bay

(a) This Order applies to the mercury discharges from internal waste streams discharged through these discharge points, and not to the once through cooling water discharges of these discharge points.

(b) This Discharger shares the North Bayside System Unit outfall with the Dischargers indicated in footnote (b) of Table 2A. This outfall serves as the combined discharge point E-002 into San Francisco Bay for these Dischargers. However, compliance with the requirements of this Order are by each Discharger at its individual compliance station specified in the Monitoring and Reporting Program, Attachment E, of this Order.

(c) The Regional Water Board adopted Order R2-2007-0065 on August 8, 2007, terminating the individual discharge permit for General Chemical West LLC effective April 1, 2008. This Discharger will cease discharge from this outfall no later than this date. The requirements of this Order do not apply to this Discharger if the effective date of this Order falls after the Discharger ceases to discharge.

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List of Tables

List of Attachments

The following Documents are part of this Permit, but are not physically attached as Attachment G due to volume. They are available on the internet at www.waterboards.ca.gov/sanfranciscobay/

- Standard Provisions and Reporting Requirements, August 1993
- Self-Monitoring Program, Part A, August 1993

I. FACILITY INFORMATION

The following Dischargers are subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	See Tables 1A and 1B above.
Name of Facility	
Facility Address	
Facility Contact, Title, and Phone	See Tables 4A and 4B below.
Mailing Address	
Type of Facility	
Facility Design Flow	

Table 4A. Additional Information on Municipal Facility (see also Table 1A)

Discharger	Facility Contact, Title, and Phone	Mailing Address	Effluent Description	Facility Design Flow (mgd)
American Canyon, City of	Robert C. Weil Public Works Director (707) 647-4550	300 Crawford Way American Canyon, CA 94503	Advanced Secondary	2.5
Benicia, City of	Jerry Gall Superintendent (707)-746-4336	Same as Facility Address	Secondary	4.5
Burlingame, City of	Phil Scott, Public Works Superintendent (650)-738-4663	501 Primrose Burlingame, CA 94010	Secondary	5.5
Calistoga, City of	Paul Wade Public Works Director (707) 942-2828 and Water Systems Super't (707) 942-2837or (707) 942-2847	414 Washington Street Calistoga, CA 94515	Secondary	0.84
Central Contra Costa Sanitary District	Douglas J. Craig Director of Operations (925) 228-9500	Same as Facility Address	Secondary	53.8
Central Marin Sanitation Agency	Robert Cole Environmental Services Manager (415) 459-1455	1301 Andersen Drive San Rafael, CA 94901	Secondary	10
Contra Costa County Sanitation District No. 5, Port Costa	Warren Lai (925) 313-2253 wlai@pw.co.contra-costa.ca.us	Contra Costa County Public Works 255 Glacier Drive Martinez, CA 94553	Secondary	0.033
Delta Diablo Sanitation District	Gary W. Darling General Manager (925) 756-1920	Same as Facility Address	Secondary	16.5
East Bay Dischargers Authority: EBDA Common Outfall Hayward Water Pollution Control Facility	Charles V. Weir General Manager (510) 278-5910	2651 Grant Avenue San Lorenzo, CA 94580	Secondary	105.8

Discharger	Facility Contact, Title, and Phone	Mailing Address	Effluent Description	Facility Design Flow (mgd)
San Leandro Water Pollution Control Plant				
Oro Loma/Castro Valley Sanitary Districts Water Pollution Control Plant				
Raymond A. Boege Alvarado Wastewater Treatment Plant				
Livermore-Amador Valley Water Management Agency (LAVWMA) Export and Storage Facilities				
Dublin San Ramon Services District Wastewater Treatment Plant				
City of Livermore Water Reclamation Plant				
East Bay Municipal Utilities District Main Wastewater Treatment Plant	Dave Williams Director of Wastewater (510) 287-1496	P.O. Box 24055 Oakland, CA 94623-1055	Secondary	120
Point Isabel WWF			Primary	100
San Antonio Creek WWF			Primary	51
Oakport WWF			Primary	158
East Brother Light Station, Inc.[1]	Tom Butt President of East Bros. Light Station Inc. (510)236-7435	117 Park Place Richmond, CA 94801	Secondary	0.00025
Fairfield-Suisun Sewer District	Larry Bahr Regulatory Program Director (707) 429-8930	Same as Facility Address	Advanced Secondary	17.5
Las Gallinas Valley Sanitary District	Mark Williams District Manager (415) 472-1734	300 Smith Ranch Rd San Rafael, CA 94903-1929	Secondary	2.92
Marin County (Paradise Cove), Sanitary District No. 5 of	Robert L. Lynch Interim District Manager (415) 435-1501	P.O. Box 227 Tiburon, CA 94920	Secondary	0.08
Marin County (Tiburon), Sanitary District No. 5 of	Robert L. Lynch Interim District Manager (415) 435-1501	P.O. Box 227 Tiburon, CA 94920	Secondary	0.98
Millbrae, City of	Khee Lim City Engineer (650) 259-2347	621 Magnolia Avenue Millbrae, CA 94030	Secondary	3
Mt. View Sanitary District	David R. Contreras District Manager (925) 228-5635 ext. 32	P. O. Box 2757 Martinez, CA 94553	Advanced Secondary	3.2
Napa Sanitation District	Mr. Tim Healy Assistant General Manager/District Engineer (707) 258-6000 x508	935 Hartle Court Napa, CA 94559	Secondary	15.4

Discharger	Facility Contact, Title, and Phone	Mailing Address	Effluent Description	Facility Design Flow (mgd)
Novato Sanitary District	Beverly James General Manager (415) 892-1694 x111	500 Davidson Street Novato, CA 94945	Secondary	5.4
Palo Alto, City of	Phil Bobel Environmental Compliance Manager (650) 329-2285	2501 Embarcadero Way, Palo Alto, CA 94303	Advanced Secondary	39
Petaluma, City of	Michael J. Ban Director of Water Resources and Conservation (707) 778-4487	202 N. McDowell Blvd. Petaluma, CA 94954	Secondary	5.2
Pinole, City of	Julian Misra Plant Manager (510) 724-8963	1 Tennant Avenue, Pinole, CA, 94564	Secondary	4.06
Rodeo Sanitary District	Steven S. Beall Engineer-Manager 510-799-2970	Same as Facility Address	Secondary	1.14
Saint Helena, City of	Jonathon Goldman Director of Public Works (707) 968-2746	1480 Main Street St. Helena, CA 94574	Secondary	0.05
San Francisco, City and County of (Airport Commission)	Mark Costanzo Utilities Manager (650) 642-4798	676 McDonnell Road San Francisco, CA 94128	Secondary	2.2
San Francisco (Southeast Plant), City and County of	Thomas Franza Assistant General Manager of Wastewater (415) 554-2475	1155 Market St., 11th Floor San Francisco, CA 94103	Secondary	150
San Jose/Santa Clara, Cities of	Dale Ihrke Deputy Director (408)-945-5198	700 Los Esteros Road San Jose, CA 95134	Advanced Secondary	167
San Mateo, City of	Mark Von Aspern Plant Manager (650) 522-7385	Same as Facility Address	Secondary	15.7
Sausalito-Marin City Sanitary District	Robert Simmons General Manager (415) 331-4712	#1 East Road P.O. Box 39 Sausalito, CA 94966-0039	Secondary	1.8
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[1]	Bonner Buehler Plant Operator (415) 388-1345	Same as Facility Address	Secondary	0.0075
Sewerage Agency of Southern Marin	Steve Danehy Manager (415) 388-2402	26 Corte Madera Ave. Mill Valley, CA 94941	Secondary	3.6
Sonoma Valley County Sanitary District	Jim Zambenini Operations Coordinator (707)975-5616	Sonoma County Water Agency P.O. Box 11628 Santa Rosa, CA 95406	Secondary	3
South Bayside System Authority	Daniel Child Manager (650) 594-8411	Same as Facility Address	Secondary	29

Discharger	Facility Contact, Title, and Phone	Mailing Address	Effluent Description	Facility Design Flow (mgd)
South San Francisco and San Bruno, Cities of	Cassie Prudhel Technical Services Director (650) 829-3840	South San Francisco-San Bruno Water Pollution Control Plant 195 Belle Air Road South San Francisco, CA 94080	Secondary	13
Sunnyvale, City of	Lorrie Gervin Division Manager (408) 730-7268	Sunnyvale Water Pollution Control Plant P.O. Box 3707 Sunnyvale, CA 94088-3707	Advanced Secondary	29.5
US Naval Support Activity, Treasure Island	Patricia A. McFadden Brac Field Team Leader San Francisco Bay Area (415) 743-4720	Navy BRAC PMOW 410 Palm Avenue, Bldg 1, Suite 161 Treasure Island, San Francisco, CA 94130-1807	Secondary	2
Vallejo Sanitation and Flood Control District	Barry Pomeroy Director of Operations and Maintenance (707) 644-8949	Same as Facility Address	Secondary	15.5
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	E.J. Shalaby, District Manager 510-222-6700	2910 Hilltop Drive Richmond, CA 94806	Secondary	28.5
Yountville, Town of	Myke Praul Director of Public Works (707) 944-8851	6550 Yount Street Yountville, CA 94599	Secondary	0.55

[1] This Discharger serves domestic customers but is not a municipal government agency.

Table 4B. Additional Information on Industrial Facility (see also Table 1B)

Discharger	Facility Contact, Title, and Phone	Mailing Address	Type of Facility	Facility Design Flow (mgd)
Industrial Wastewater Discharger (Non-Petroleum Refinery):				
C&H Sugar and Crockett Community Services District	Tanya Akkerman Environmental Compliance Manager (510) 787-4352	Same as Facility Address	Sugar Cane Crystalline Industry	0.93
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	Christopher Sargent Environmental Coordinator (510) 787-4101	Same as Facility Address	Industrial – Electrical Generation, SIC Code 4931	0.243 (Daily Discharge Rate From 2000 to 2002)
The Dow Chemical Company	Greg Dubitsky General Manager (925) 432-5154	P.O. Box 1398, Pittsburg, CA 94565	Industrial - SIC Code 2811	0.5
General Chemical West, LLC	James Craig Director of Operations (925) 458-7363	Same as Facility Address	Industrial – Chemical and Allied Products, SIC Code 2811	0.31 (Long Term Average)
GWF Power Systems L. P.	Neftali Nevarez (925) 431-1445	4300 Railroad Ave. Pittsburg, CA 94565	Industrial - SIC Code 4911	0.045 (average)
GWF Power Systems L. P.	Neftali Nevarez (925) 431-1445	4300 Railroad Ave. Pittsburg, CA 94565	Industrial - SIC Code 4911	0.047 (average)
Pacific Gas and Electric Company (PG&E)	Robert M. Gray Consulting Environmental Scientist (925) 866-5508	3400 Crow Canyon Road, M-138 San Ramon, CA 94583	Flow-through pond for habitat enhancement	1 (Maximum Average Dry Weather Flow)
Rhodia, Inc.	Anthony Koo Environmental Coordinator (925) 313-8281	Same as Facility Address	Industrial – Chemical and Allied Products, SIC Code 2891	0.779 (Potential Maximum Daily Rate)
San Francisco, City and County of, San Francisco International Airport	Mark Costanzo Utility Manager (650) 821-7809	P.O. Box 8097 San Francisco, CA 94128	Industrial SIC Code 3721	1.7
Mirant Delta, LLC	Steve Bauman, Senior Environmental Engineer (925) 427-3381	Pittsburg Power Plant P.O. Box 192 Pittsburg, CA 94565	Electric Power generation	506
Mirant Potrero, LLC	Steve Bauman Senior Environmental Engineer (925) 427-3381	Mirant Potrero, LLC, Potrero Power Plant, 1201-A Illinois Street San Francisco, CA 94107	Electric Power generation	226
USS-Posco Industries	David Allen Regulations Manager (925) 439-6290	P.O. Box 471 Pittsburg, CA 94565	Industrial - SIC Code 3312	28

Discharger	Facility Contact, Title, and Phone	Mailing Address	Type of Facility	Facility Design Flow (mgd)
Industrial Wastewater Discharger (Petroleum Refinery):				
Chevron Products Company	Rich Sandman (510) 242-5017	Same as Facility Address	Industrial - Petroleum Refining	7.6
ConocoPhillips	Dennis Quilici Water Compliance Specialist (510) 245-4403	Same as Facility Address	Industrial – Petroleum Refining	10
Shell Oil Products US and Equilon Enterprises LLC	Steven D. Overman Senior Staff Engineer (925) 313-3281	Same as Facility Address	Industrial – Petroleum Refining	10
Tesoro Refining & Marketing Co.	Rose Pedregosa (925) 370-3625	Same as Facility Address	Industrial - Petroleum Refining	5.1
Valero Refining Company	Marcus Cole Senior Environmental Engineer (707) 745-7807	Same as Facility Address	Industrial - Petroleum Refining	2.34

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. Background. The dischargers listed in this Order in Tables 1A and 1B (collectively, Dischargers; individually, Discharger) are currently discharging pursuant to the Order Nos. and National Pollutant Discharge Elimination System (NPDES) Permit Nos. as shown in Attachment B. This Order is the mercury watershed permit and implements the wasteload allocations and implementation requirements of the mercury TMDL and implementation plan adopted by the Regional Water Board on August 9, 2006, and supersedes mercury requirements in those permits.

For the purposes of this Order, references to the "dischargers" or "permittees" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Dischargers herein.

B. Facility Description. The Dischargers listed in Table 1A (Municipal Dischargers) own and operate secondary and advanced secondary wastewater treatment facilities as described in their respective Orders. The Dischargers listed in Table 1B (Industrial Dischargers) own and operate wastewater treatment facilities as described in their respective Orders. Wastewater is discharged from the Discharge points indicated in Tables 2A and 2B to San Francisco Bay and its tributaries, which are waters of the United States within the San Francisco Bay watershed. Attachment C shows a map of the Dischargers subject to this Order.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges of mercury from Dischargers' facilities to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on detailed technical analyses which provide the foundation for the mercury TMDL. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through G are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

G. Water Quality-Based Effluent Limitations. Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order sets forth water quality-based effluent limitations for mercury,

which implement and are consistent with the assumptions and requirements of the mercurty TMDL wasteload allocations.

H. Water Quality Control Plans. The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Basin, *Water Quality Control Basin (Region 2)* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the San Francisco Bay are as follows:

Table 5. Basin Plan Beneficial Uses

Receiving Water Name	Beneficial Use(s)
San Francisco Bay and Applicable Tributaries – See individual Order Nos. (Attachment B) for specific Beneficial Uses that apply.	Agricultural Supply (AGR), Cold Freshwater Habitat (COLD), Ocean, Commercial, and Sport Fishing (COMM), Estuarine habitat (EST), Industrial Service Supply (IND), Marine Habitat (MAR), Fish Migration (MIGR), Municipal and domestic Supply (MUN), Navigation (NAV), Industrial Process Supply (PROC), Preservation of Rare and Endangered Species (RARE), Water Contact Recreation (REC1), Noncontact Water Recreation (REC2), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD)

Requirements of this Order implement the Basin Plan.

The Regional Water Board adopted a Basin Plan Amendment on August 9, 2006, that establishes new water quality objectives for mercury, and that establishes the San Francisco Bay Mercury TMDL to attain the new mercury objectives in San Francisco Bay and contiguous bay segments. The Regional Water Board's Executive Officer made corrections on May 23, 2007, and the State Water Board approved the Basin Plan Amendment (as corrected), and new water quality objectives on July 17, 2007. The new objectives and TMDL become effective after approval by the USEPA. Elevated mercury concentrations currently exist in the tissues of fish, and methylmercury, a highly toxic form of mercury, is a persistent bioaccumulative pollutant. The mercury TMDL calls for reduction of mercury mass loadings to San Francisco Bay. Additional details regarding mercury sources to San Francisco Bay, and technical information related to the San Francisco Bay Mercury TMDL, are provided in the Fact Sheet. The purpose of this Order is to implement the San Francisco Bay Mercury TMDL wasteload allocations for Dischargers listed in Tables 1A and 1B.

I. State Implementation Policy. On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the California Toxics Rule and National Toxics Rule, and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The State Water Board adopted amendments to the

SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

J. Antidegradation Policy. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharges are consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

K. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Because the water quality-based effluent limitations in this Order are based on a TMDL, there is no backsliding.

L. Monitoring and Reporting. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

M. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The Dischargers must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Dischargers. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

N. Provisions and Requirements Implementing State Law. Not applicable.

O. Notification of Interested Parties. The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharges and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

P. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharges. Details of the Public Hearing are provided in the Fact Sheet of this Order.

IT IS HEREBY ORDERED, that this Order supersedes all mercury requirements for Discharge Points listed in Table 2A and 2B that are regulated by the Order Nos. listed in Attachment B, except for applicable enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Dischargers shall comply with the requirements in this Order.

III. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Municipal Discharger Effluent Limits

The mass and concentration of mercury in the effluent at the Discharge Points indicated in Table 4A, with compliance measured at the Monitoring Location as described in the MRP (Attachment E) for each Discharger shall not exceed the limitations in Table 6.

Table 6. Municipal -- Individual Mercury Effluent Limitations

Discharger	Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 10 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 20 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Average Monthly Effluent Limit[2](µg/L)	Average Weekly Effluent Limit[2] (µg/L)
American Canyon, City of	0.12	0.095	0.095	0.025	0.027
Benicia, City of	0.088	0.088	0.088	0.066	0.072
Burlingame, City of	0.089	0.089	0.089	0.066	0.072
Calistoga, City of	0.016	0.016	0.016	0.066	0.072
Central Contra Costa Sanitary District	2.23	1.8	1.3	0.066	0.072
Central Marin Sanitation Agency	0.18	0.15	0.11	0.066	0.072
Contra Costa County Sanitation District No. 5, Port Costa	0.00072	0.00072	0.00072	0.066	0.072
Delta Diablo Sanitation District	0.31	0.25	0.19	0.066	0.072
East Bay Dischargers Authority, including City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Livermore-Amador Valley Water Management Agency (LAVWMA), Dublin San Ramon Services District, and City of Livermore	3.6	2.9	2.2	0.066	0.072

Discharger	Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 10 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 20 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Average Monthly Effluent Limit[2](µg/L)	Average Weekly Effluent Limit[2] (µg/L)
East Bay Municipal Utilities District, including its Wastewater Treatment Plant and Wet Weather Facilities	2.6	2.1	1.5	0.066	0.072
East Brother Light Station, Inc.[3]	0.00001	0.000012	0.000012	0.066	0.072
Fairfield-Suisun Sewer District	0.22	0.17	0.17	0.025	0.027
Las Gallinas Valley Sanitary District	0.17	0.13	0.10	0.066	0.072
Marin County (Paradise Cove), Sanitary District No. 5 of	0.00055	0.00055	0.00055	0.066	0.072
Marin County (Tiburon), Sanitary District No. 5 of	0.0099	0.0099	0.0099	0.066	0.072
Millbrae, City of	0.052	0.052	0.052	0.066	0.072
Mt. View Sanitary District	0.034	0.034	0.034	0.025	0.027
Napa Sanitation District	0.28	0.23	0.17	0.066	0.072
Novato Sanitary District	0.079	0.079	0.079	0.066	0.072
Palo Alto, City of	0.38	0.31	0.31	0.025	0.027
Petaluma, City of	0.063	0.063	0.063	0.066	0.072
Pinole, City of	0.055	0.055	0.055	0.066	0.072
Rodeo Sanitary District	0.060	0.060	0.060	0.066	0.072
Saint Helena, City of	0.047	0.047	0.047	0.066	0.072
San Francisco , City and County of, San Francisco International Airport, Sanitary	0.032	0.032	0.032	0.066	0.072
San Francisco (Southeast Plant), City and County of	2.7	2.1	1.6	0.066	0.072
San Jose/Santa Clara, Cities of	1.0	0.80	0.80	0.025	0.027
San Mateo, City of	0.32	0.26	0.19	0.066	0.072
Sausalito-Marin City Sanitary District	0.078	0.078	0.078	0.066	0.072
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[3]	0.00036	0.00036	0.00036	0.066	0.072
Sewerage Agency of Southern Marin	0.13	0.10	0.076	0.066	0.072
Sonoma Valley County Sanitary District	0.041	0.041	0.041	0.066	0.072
South Bayside System Authority	0.53	0.42	0.32	0.066	0.072
South San Francisco and San Bruno, Cities of	0.29	0.24	0.18	0.066	0.072

Discharger	Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 10 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Effective in 20 years Average Annual Effluent Limit[1,2,5] (kg/yr)	Average Monthly Effluent Limit[2](µg/L)	Average Weekly Effluent Limit[2] (µg/L)
Sunnyvale, City of	0.15	0.12	0.12	0.025	0.027
US Naval Support Activity[3] (Treasure Island)	0.026	0.026	0.026	0.066	0.072
Vallejo Sanitation and Flood Control District	0.57	0.46	0.34	0.066	0.072
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	0.38	0.30	0.23	0.066	0.072
Yountville, Town of	0.040	0.040	0.040	0.066	0.072
Aggregate Mass Emission Limit[1,4,5](kg/yr)	**17**	**14**	**11**	**Not applicable**	**Not applicable**

Footnotes:

(1) Compliance with the Average Annual Effluent Limitations is determined annually for each Municipal Discharger each calendar year, and is attained if the sum of all individual Municipal Dischargers' mercury mass emissions, calculated as described below, is not greater than the Aggregate Mass Emission Limit of 17 kg/yr (or 14 kg/yr in 10 years, or 11 kg/yr in 20 years). If the sum of all individual Municipal Dischargers' mercury mass emission(s) is greater than 17 kg/yr (or 14 kg/yr in 10 years, or 11 kg/yr in 20 years), the Municipal Discharger(s) whose mercury mass emission(s) exceed(s) its (their) individual limitation(s) in Table 6, shall be deemed to be in violation of its (their) mercury mass limitation(s). For compliance determination, mass emissions shall be determined as defined below:

a. The total annual aggregate mass emission shall be the sum of the individual annual mass emissions from each Municipal Discharger. The sum shall be rounded to the nearest kilogram for comparison with the 17 kg/yr.

b. The annual average mass emission for each Discharger shall be computed for the period January 1 through December 31, annually. If this Order becomes effective on or after April 1st, no annual average mass emission calculation shall be necessary on this first partial calendar year. In this case, annual average mass emission calculation and compliance determination shall commence on the following full calendar year and all subsequent years.

c. The annual average mass emission for each Discharger listed in Table 6 above shall be the sum of monthly emissions on a calendar year basis and computed as follows:

$$Annual\ Mass\ Emission, kg/year = \sum \left(Monthly\ Mass\ Emission\ Rates, kg/month \right)$$

or, for Dischargers with less frequent mercury monitoring than monthly, or if this Order becomes effective after January 1st and prior to March 1st, the Annual Mass Emission shall be computed using the arithmetic average of available monthly mass emissions as follows:

$$Annual\ Mass\ Emission, kg/year = \left(\frac{\sum MonthlyMassEmission, kg/mo}{NumberofMonthlyMassEmissionsCalculated} \right) * 12 mo/year$$

where

$$Monthly\ Mass\ Emission, kg/mo = \left(\frac{0.003785}{N}\right) * \left(\sum_{i=1}^{N} Q_i C_i\right) * 30.5 = \frac{0.1154425}{N} * \left(\sum_{i=1}^{N} Q_i C_i\right)$$

and where

C_i = mercury concentration of each individual sample, µg/l
Q_i = Discharger flow rate on date of sample, millions of gallons per day (mgd)
N = number of samples collected during the month
0.003785 = conversion factor to convert (µg/l)*(mgd) into kg/day
30.5 = number of days in a standard month
0.1154425= product of (conversion factor)·(number of standard days per month)

and where Q_i for intermittent Dischargers [Dischargers who do not discharge every day in a calendar month, or have no discharge for an entire month (Q_i = 0)] shall be computed as follows:

$$Q_i = \left(\frac{\sum_{d=1}^{D} Q_d}{30.5}\right)$$

where

Q_d = is the total flow for the day when discharge occurred, million gallons
D = total number of days where discharge occurred in a month
30.5 = number of days in a standard month

d. The Monthly Mass Emission for a Discharger who provides recycled wastewater for industrial supply, shall include the effluent discharge adjustment granted to the industrial Discharger for its recycled wastewater use as described in III.B and Provision V.C.5 of this Order. The monthly effluent discharge adjustment mass shall be reported in each Self-Monitoring Report and in the Annual Mercury Information Reporting Form Part 2 of 3 under "Comments on Data."

(2) For compliance determination as defined in Section VI and Attachment A of this Order, the Discharger shall achieve the following, Minimum Level (ML).

Table 7. Minimum Levels

Constituent	Minimum Level	Units
Mercury	0.0005	µg/L

(3) This Discharger serves domestic customers but is not a municipal government agency. For the purpose of this Order, this Discharger is a "Municipal Discharger."

(4) Total differs slightly from the column sum due to rounding to the nearest kilogram.

(5) The first Annual Average Effluent Limits represent the San Francisco Bay Mercury TMDL's initial mass limits for Municipal Dischargers. In accordance with the TMDL and the compliance schedule provision that the Regional Water Board will submit to USEPA for approval, the Municipal Dischargers listed in this table have up to 10 years from the effective date of this Order to achieve the "Effective in 10 Years Annual Average Effluent Limits" and its respective Aggregate Annual Mass Emission Limit, and up to 20 years to achieve the "Effective in 20 Years Annual Average Effluent Limits" and its respective Aggregate Annual Mass Emission Limit listed in Table 6.

B. Industrial Discharger Effluent Limits

The mass and concentration of mercury in the effluent at the Discharge Points indicated in Table 4B for each Discharger shall not exceed the limitations in Table 8. Monitoring locations are described in Attachment E of this Order.

Table 8. Industrial -- Individual Mercury Effluent Limitations

Permitted Entity	Average Annual Effluent Limit[1,2] (kg/yr)	Average Monthly Effluent Limit[2] (µg/L)	Maximum Daily Effluent Limit[2]
Industrial Wastewater Discharger (Non-Petroleum Refinery):			
C&H Sugar Company Inc., and Crockett Community Services District	0.045	0.079	0.12
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	0.0047	0.079	0.12
The Dow Chemical Company	0.041	0.079	0.12
General Chemical West, LLC	0.21	0.079	0.12
GWF Power Systems L. P., Site I	0.0016	0.079	0.12
GWF Power Systems L. P., Site V	0.0025	0.079	0.12
Pacific Gas and Electric Company	0.00063	0.079	0.12
Rhodia, Inc.	0.011	0.079	0.12
San Francisco Airport Commission	0.051	0.079	0.12
Mirant Delta, LLC	0.0078	0.079	0.12
Mirant Potrero LLC	0.0031	0.079	0.12
USS-Posco Industries	0.045	0.079	0.12
Industrial Wastewater Discharger (Petroleum Refinery):			
Chevron Products Company	0.34	0.079	0.12
ConocoPhillips	0.13	0.079	0.12
Shell Oil Products US and Equilon Enterprises LLC	0.22	0.079	0.12
Tesoro Refining & Marketing Co.	0.11	0.079	0.12
Valero Refining Company	0.08	0.079	0.12
Aggregate Mass Emission Limit[4](kg/yr)	**1.3[4]**	**Not applicable**	**Not applicable**

Footnotes:

(1) Compliance with the Average Annual Effluent Limitations is determined annually for each Industrial Discharger each calendar year, and is attained if the sum of the individual Industrial Dischargers' mercury mass emissions, calculated as described below, is not greater than the Aggregate Mass Emission Limit of 1.3 kg/yr. If the sum of all individual Industrial Dischargers' mercury mass emission(s) is greater than 1.3 kg/yr, the Industrial Discharger(s) whose mercury mass emission(s) exceed(s) its (their) individual limitation, above, shall be deemed to be in violation of its (their) mercury mass limitation(s). For compliance determination, mass emissions shall be determined as defined below:

a. The total annual aggregate mass emission shall be the sum of the individual annual mass emissions from each Industrial Discharger. The sum shall be rounded to the nearest kilogram for comparison with the 1.3 kg/yr.

b. The annual average mass emission for each Industrial Discharger shall be computed for the period January 1 through December 31, annually. If this Order becomes effective on or after April 1st, no annual average mass emission calculation shall be necessary on this first partial calendar year. In this case, annual average mass emission calculation and compliance determination shall commence on the following full calendar year and all subsequent years.

c. The annual average mass emission for each Discharger listed in Table 8 above shall be the sum of monthly emissions on a calendar year basis and computed as follows:

$$Annual\ Mass\ Emission, kg/year = \sum \left(Monthly\ Mass\ Emission\ Rates, kg/month \right)$$

Or, for Dischargers with less than monthly mercury monitoring, the Annual Mass Emission shall be computed using the arithmetic average of available monthly mass emissions as follows:

$$Annual\ Mass\ Emission, kg/year = \left(\frac{\sum MonthlyMassEmission, kg/mo}{NumberofMonthlyMassEmissionsCalculated} \right) * 12 mo/year$$

where

$$Monthly\ Mass\ Emission, kg/mo = \left(\frac{0.003785}{N} \right) * \left(\sum_{i=1}^{N} Q_i C_i \right) * 30.5 = \frac{0.1154425}{N} * \left(\sum_{i=1}^{N} Q_i C_i \right)$$

and where

C_i = mercury concentration of each individual sample, µg/l
Q_i = Discharger flow rate on date of sample, millions of gallons per day (mgd)
N = number of samples collected during the month
0.003785 = conversion factor to convert (µg/l)*(mgd) into kg/day
30.5 = number of days in a standard month
0.1154425= product of (conversion factor)·(number of standard days per month)

and where Q_i for intermittent Dischargers [Dischargers who do not discharge every day in a calendar month, or have no discharge for an entire month (Q_i = 0)] shall be computed as follows:

$$Q_i = \left(\frac{\sum_{d=1}^{D} Q_d}{30.5} \right)$$

where

Q_d = is the total flow for the day when discharge occurred, million gallons
D = total number of days where discharge occurred in a month
30.5 = number of days in a standard month

d. For an Industrial Discharger who uses treated recycled wastewater for industrial supply from a Municipal Discharger named in this Order, the Industrial Discharger shall subtract from its Monthly Mass Emission in c., above, an adjustment for the recycled water used and discharged through its discharge point as provided in Provision V.C.5 of this Order. The Industrial Discharger shall report this effluent discharge adjustment mass to the Municipal Discharger that provided the recycled wastewater within 15 days following the end of the calendar month for which an adjustment is applied, and shall report the adjustment in each Self-Monitoring Report and in the Annual Mercury Information Reporting Form Part 2 of 3 under “Comments on Data.”

(2) For compliance determination as defined in Section VI and Attachment A of this Order, the Discharger shall achieve the following, Minimum Level (ML).

Table 9. Minimum Levels

Constituent	Minimum Level	Units
Mercury	0.0005	µg/L

(3) N/A means that a concentration-based limit is not applicable at this time.

(4) Total differs slightly from the column sum due to rounding to two significant digits.

IV. RECEIVING WATER LIMITATIONS – Receiving water limitations are provided in each Discharger's individual NPDES Permits (see Attachment B).

V. PROVISIONS

A. Standard Provisions

The Dischargers shall comply with all Standard Provisions included in Attachment D of this Order, except for Standard Provisions V.D related to compliance schedules.

B. Monitoring and Reporting Program Requirements. The Dischargers shall comply with the Monitoring and Reporting Program (MRP), and future revisions thereto, in Attachment E of this Order. The Dischargers shall also comply with the requirements contained in Self-Monitoring Program, Part A (August 1993) (Attachment G), including any amendments thereto.

C. Special Provisions

1. Triggers for Additional Mercury Control

a. Each individual Discharger shall comply with C.1.c. of this Order if its discharge exceeds any of the applicable triggers described in Tables 10 and 11.

Table 10. Triggers for Municipal Dischargers

Type of Trigger	Average Monthly	Maximum Daily
Concentration for Secondary Treatment Plants	0.041 µg/L	0.065 µg/L
Concentration for Advanced Secondary Treatment Plants	0.011 µg/L	0.021 µg/L
Mass Emission	Individual annual mass emission limit, as depicted in Table 6, above, and computed as a 12-month running average, as shown in C.1.b., below.	

Table 11. Triggers for Industrial Dischargers

Type of Trigger	Average Monthly	Maximum Daily
Concentration	0.037 μg/L	0.062 μg/L
Mass Emission	Individual annual mass emission limit, as depicted in Table 8, above, and computed as a 12-month running average, as shown in C.1.b., below.	

b. The running 12-month average mass emission shall be computed monthly for each calendar month as follows:

$$(12-month\ Running\ Average, kg) = (Current\ Mass\ Emission, kg) + \sum (Previous\ 11\ months'\ mass\ emissions, kg)$$

where the current mass emission is the emission for the current calendar month computed as shown in III.A. above.

c. Each Discharger who exceeds any of the applicable triggers listed in Table 10 or 11, above, shall comply with the following action requirements:

Table 12. Action Plan for Trigger Exceedance

Task	Deadline
i. *Accelerated Sampling.* As soon as the Discharger becomes aware of the exceedance, resample within 48 hours and commence weekly sampling (or more frequent than weekly) for a total of at least 6 new samples. If all 6 new samples show mercury levels below the triggers, return to routine sampling. If during the accelerated sampling, (1) any of the new samples are above the maximum daily trigger, or (2) the monthly average of the new samples is above the monthly trigger, or (3) the 12-month running average mass is above the mass trigger, then proceed with action plan for mercury reduction and continue sampling monthly until the observed mercury discharge is below the trigger levels for 3 consecutive months, at which point the Discharger shall complete the reporting of this exceedance as required by Tasks ii. and ix, and return to routine monitoring, and discontinue efforts under Task iii, below.	See deadlines in task description.
ii. *Report Trigger Exceedance.* The Discharger shall report to the Regional Water Board any exceedance of trigger levels in the cover letter of its Self-Monitoring Report, and the status of its plans and actions to accelerate monitoring and/or develop and implement an action plan for mercury reduction.	In the Self-Monitoring Report due 30 days after the end of the monitoring period.
iii. *Action Plan for Mercury Reduction*. Develop, submit, and implement an Action Plan that (1) evaluates the cause[1] of the trigger exceedance(s); (2) evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances; (3) evaluates the feasibility and effectiveness of technology enhancements to improve treatment plant performance; and (4) evaluates other measures for preventing future exceedances. In addition, the Discharger shall identify in the Action Plan mercury reduction measures it will take along with an implementation schedule for those measures to correct current and prevent future trigger exceedances.	Within 130 days of the initial trigger exceedance

[1] *Possible causes of exceedances include (but are not limited to) changes in reclamation, increases in the number of sewer connections, increases in infiltration and inflow (I/I), changes in the type or number of industrial, commercial, or residential sources, changes in the raw material used in manufacturing processes, changes in treatment system operation, or factors beyond the Discharger's control, such as a natural disaster, vandalism, illegal dumping, or extreme flood event.*	
iv. *Annual Reporting*. The Discharger shall provide a status of its mercury reduction efforts in the annual Self-Monitoring Report. Additionally, as causes and corrective actions are identified, the Discharger shall amend or supplement its Action Plan as appropriate. Such changes shall be reported to the Regional Water Board in the Discharger's Annual Self-Monitoring Report.	Annually due February 1st of each year until the Discharger demonstrates compliance with trigger levels for a continuous 3-month period of sampling.

2. Mercury Source Control Program for Municipal Dischargers

The Dischargers in Table 1A shall develop, implement, and document cost-effective pretreatment/pollution prevention reduction strategies for dental offices to manage and reduce the amount of mercury amalgam that is discharged from dental offices into the public wastewater collection systems in accordance with the following:

a. The target for this program is that 85% of dental offices that generate mercury amalgam waste in the region will be participating in an amalgam program within 5 years after the effective date of this Order. Within 2 years of the effective date of this Order, the municipal wastewater Dischargers (Table 1A) shall develop and begin to implement a dental amalgam program with the goal of achieving the target within five years.

b. The municipal wastewater Dischargers in Table 1A shall estimate the dental amalgam collected (and describe the basis for its estimation) and describe any other mercury pollution prevention programs that are implemented and maintained by individual municipal wastewater dischargers. The municipal wastewater Dischargers shall provide this information to the Regional Water Board no later than June 30, 2012. The municipal wastewater Dischargers may collaborate to provide this information in a single report to satisfy this requirement for the entire group.

3. Additional Special Studies for Adaptive Management

The Dischargers in Tables 1A and 1B, or their agent(s), shall submit a work plan within one year of the effective date of this Order, to include an implementation schedule for the following activities:

a. Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, the conditions under which mercury methylation occurs, and biological uptake in San Francisco Bay, its contiguous segments, and tidal areas; and

b. Conduct or cause to be conducted studies to evaluate the presence of, or potential for, local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges.

The work plan shall include annual progress reports, due April 1st to the Regional Water Board. This progress report shall be combined with any group compliance reporting required by IV.C. of the Monitoring and Reporting Program, Attachment E of this Order.

4. Risk Reduction Programs

The Dischargers shall develop and implement or participate in effective programs to reduce mercury-related risks to humans and quantify the resulting risk reductions from these activities. The activities may be performed by a third party if the Dischargers wish to provide funding for this purpose. This requirement may be satisfied by a combination of related efforts through the Regional Monitoring Program or other similar collaborative efforts.

The risk reduction activities shall include investigating ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay-caught fish, such as subsistence fishers and their families. Such strategies should include public participation in developing effective programs in order to ensure their effectiveness. The Dischargers may include studies needed to establish effective exposure reduction activities and risk communication messages as part of their planning.

Within 1 year of the effective date of this Order, the Dischargers shall submit, or cause to be submitted, a progress report describing their efforts in developing risk management and reduction programs, with community participation and input.

Within 2 years of the effective date of this Order, the Dischargers shall submit, or cause to be submitted, a report describing the details of their risk management and reduction programs, the community participation process that was involved in developing such programs, any third parties involved in implementing the programs, and a plan for evaluating the programs' effectiveness. The report shall include an implementation schedule with implementation beginning within 3 years of the effective date of this Order. The Dischargers shall describe the progress of their efforts in the Annual Self-Monitoring Report required by IV.B.2.b. (or IV.C, Optional Group Compliance Reporting) in Attachment E of this Order.

5. Mercury Discharge Adjustment for Recycled Wastewater Use by Industrial Dischargers

When an industrial Discharger named on Table 1B of this Order uses recycled wastewater from a municipal Discharger named on Table 1A of this Order, the industrial Discharger may, at its option, apply an adjustment (hereinafter Adjustment) to its mercury mass emission or discharge concentration when determining compliance with its concentration and mass limits specified in III.B. of this Order.

The Adjustment shall be based on measured influent mercury levels from the recycled wastewater in accordance with the following:

a. The Industrial Discharger shall sample and analyze the influent recycled wastewater and the effluent discharge at least monthly. Influent sampling shall include measurement of daily flow volume for the entire duration that Adjustments are applied. Influent sampling shall occur at an appropriate influent sampling station as identified in the Discharger's individual permit.

b. The Industrial Discharger shall determine the time interval between introduction of a given constituent of concern in the influent recycled water and the first appearance of the constituent in the final effluent. The basis for this determination must be included in any calculation of Adjustment.

c. Calculation of Mercury Discharge Adjustment.

<u>Concentration Adjustment</u>
Influent concentration multiplied by total influent recycled water flow volume for that monitoring interval will yield an influent mass, which is valid for that monitoring interval. This influent mass is then divided by the total effluent flow volume for the time interval following the appropriate time lag described in 5.b. above, for that monitoring period to give a concentration Adjustment that will apply for the monitoring interval. The monitoring interval is the time between sampling days. For example, monthly sampling yields a one month monitoring interval. An example follows:

ex. Mercury is monitored monthly. The lag time is Y days.

Step 1: {(Influent concentration of mercury in Recycled Wastewater) – (Influent concentration of mercury in potable water)} x (Total Influent Volume of Recycled Wastewater for the month) = (Influent mass of mercury from Recycled Wastewater)

Step 2: (Influent mass) ÷ (Total effluent discharge volume for the 30-day period, Y days after influent sampled) = (Concentration Adjustment to be subtracted from concentration of mercury in the discharge, valid for that month)

<u>Mass Adjustment</u>
Influent concentration multiplied by total influent recycled water flow volume for that monitoring interval will yield an influent mass, which is valid for that monitoring interval. This influent mass is divided by the number of days in that monitoring period to give a mass Adjustment that will apply for the monitoring interval. The monitoring interval is the time between sampling days. For example, monthly sampling yields a one month monitoring interval. A schematic example follows:

ex. Constituent B is monitored monthly. The lag time is Y days.

Step 1: {(Influent concentration of mercury in Recycled Wastewater) – (Influent concentration of mercury in potable water)} x (Total Influent Volume of Recycled Wastewater for the month) = (Influent mass of mercury in Recycled Wastewater)

Step 2: (Influent mass) ÷ (30.5, the number of days in a standard month) = (Mass Emission Adjustment to be subtracted from monthly mass emission for that month)

d. If an Industrial Discharger opts to apply a Mass Emission Adjustment, the Regional Water Board shall transfer that Adjustment to the mass emission for the corresponding discharge interval from the Municipal Discharger who is the producer and source of the recycled wastewater. If this reverse Adjustment results in an adjusted mass discharge level above both of the following criteria, then, that Municipal Discharger is in violation of its Annual Average Effluent Limit and is subject to enforcement action by the Regional Water Board:

   i. The sum of the adjusted mass discharge levels from the Industrial Discharger and the Municipal Discharger exceeds the sum of the individual Average Annual Effluent Limits for these two Dischargers; and

   ii. The adjusted mass discharge levels from the Municipal Discharger results in an aggregate mass emission from all Municipal Dischargers that exceeds the Aggregate Mass Emission Limit for Municipal Dischargers.

6. Reopener Provision

This Order may be reopened for modification, or revocation and reissuance, as a result of the following:

a. if the State Water Board has not established a pollutant offset program that can be implemented within 20 years of the effective date of this Order; or

b. if there is modification of the San Francisco Bay Mercury TMDL implementation provisions.

VI. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for mercury shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, a Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data.

When determining compliance with an average monthly effluent limit (AMEL) for priority pollutants and more than one sample result is available, the Dischargers shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (*n*) is odd, then the median = $X_{(n+1)/2}$. If *n* is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the *n*/2 and *n*/2+1).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Not Detected (ND) are those sample results less than the laboratory's MDL.
Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

ATTACHMENT B – EXISTING ORDER NOS. AND NPDES PERMIT NOS.

Municipal Dischargers:

Discharger	NPDES Permit No.	Existing Order No.[1]	Existing Order Adoption Date	Existing Order Expiration Date
American Canyon, City of	CA0038768	R2-2006-0036	6/14/06	6/30/11
Benicia, City of	CA0038091	01-096[2]	8/15/01	7/31/06
Burlingame, City of	CA0037788	R2-2002-0027[2]	2/27/02	1/31/07
Calistoga, City of	CA0037966	R2-2006-0066	10/11/06	2/28/10
Central Contra Costa Sanitary District	CA0037648	R2-2007-008	1/23/07	3/31/12
Central Marin Sanitation Agency	CA0038628	R2-2007-007	1/23/07	3/31/12
Contra Costa County Sanitation District No. 5, Port Costa	CA0037885	R2-2003-0009[2]	1/22/03	12/31/07
Delta Diablo Sanitation District	CA0038547	R2-2003-0114	12/03/03	1/01/09
East Bay Dischargers Authority	CA0037869	R2-2006-0053	8/09/06	9/30/11
Union S.D. Wet Weather Outfall	CA0038733	R2-2004-0002	1/21/04	2/28/09
Union S.D. Hayward Marsh	CA0038636	R2-2006-0031	5/10/06	5/09/11
Dublin San Ramon Services District	CA0037613	R2-2006-0054	8/09/06	9/30/11
City of Livermore	CA0038008	R2-2006-0055	8/09/06	9/30/11
LAVWMA Wet Weather Outfall	CA0038679	R2-2006-0026	4/12/06	6/08/11
East Bay Municipal Utilities Dist. WWTP	CA0037702	01-072[2]	6/20/01	5/31/06
EBMUD Wet Weather Facilities	CA0038440	R2-2005-0047	9/21/05	3/31/10
East Brother Light Station, Inc.	CA0038806	R2-2004-0079	9/15/04	11/30/09
Fairfield-Suisun Sewer District	CA0038024	R2-2003-0072	8/20/03	9/30/08
Las Gallinas Valley Sanitary District	CA0037851	R2-2003-0108	12/03/03	11/30/08
Marin County (Paradise Cove), Sanitary District No. 5 of	CA0037427	R2-2006-0037	6/14/06	6/30/11
Marin County (Tiburon), Sanitary District No. 5 of	CA0037753	R2-2002-0097[2]	9/18/02	10/31/07
Millbrae, City of	CA0037532	01-143	11/28/01	10/31/06
Mt. View Sanitary District	CA0037770	R2-2006-0063	9/13/06	5/17/10
Napa Sanitation District	CA0037575	R2-2005-0008	4/20/05	3/31/10
Novato Sanitary District	CA0037958	R2-2004-0093	11/17/04	12/31/09
Palo Alto, City of	CA0037834	R2-2003-0078	8/20/03	9/30/08
Petaluma, City of	CA0037810	R2-2005-0058	10/19/05	10/20/10
Pinole, City of	CA0037796	R2-2007-0024	3/14/07	5/31/12
Rodeo Sanitary District	CA0037826	R2-2006-0062	9/13/06	11/30/11
Saint Helena, City of	CA0038016	R2-2005-0025	6/15/05	4/27/10
San Francisco, City and County of, San Francisco International Airport, Sanitary	CA0038318	R2-2007-0058	8/8/07	9/30/12
San Francisco (Southeast Plant), City and County of	CA0037664	R2-2002-0073[2]	6/19/02	5/31/07
San Jose/Santa Clara, Cities of	CA0037842	R2-2003-0085	6/17/03	9/30/08
San Mateo, City of	CA0037541	01-071[2]	6/20/01	5/31/06
Sausalito-Marin City Sanitary District	CA0038067	R2-2007-0054	8/8/07	9/30/12
Seafirth Estates Company and Property Owners with the Seafirth Estates Subdivision	CA0038893	R2-2006-0082	12/13/06	2/29/12
Sewerage Agency of Southern Marin	CA0037711	R2-2007-0057	8/8/07	9/30/12
Sonoma Valley County Sanitary District	CA0037800	R2-2002-0046[2]	3/20/02	2/28/07
South Bayside System Authority	CA0038369	R2-2007-0006	1/23/07	3/31/12
South San Francisco and San Bruno, Cities of	CA0038130	R2-2003-0010	1/22/03	3/31/08
Sunnyvale, City of	CA0037621	R2-2003-0079	8/20/03	9/30/08

Discharger	NPDES Permit No.	Existing Order No.[1]	Existing Order Adoption Date	Existing Order Expiration Date
US Naval Support Activity, Treasure Island	CA0110116	R2-2004-0036	5/19/04	12/30/09
Vallejo Sanitation and Flood Control District	CA0037699	R2-2006-0056	8/09/06	9/30/11
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	CA0038539	01-144[2]	11/28/01	10/31/06
Yountville, Town of	CA0038121	R2-2004-0017	3/17/04	4/30/09

[1] The orders shown are for the primary permit reissuance and do not include permit amendments.

[2] The individual permits specified in these orders are scheduled for reissuance in 2007 and the first calendar quarter of 2008, prior to the effective date of this Order.

Industrial Dischargers:

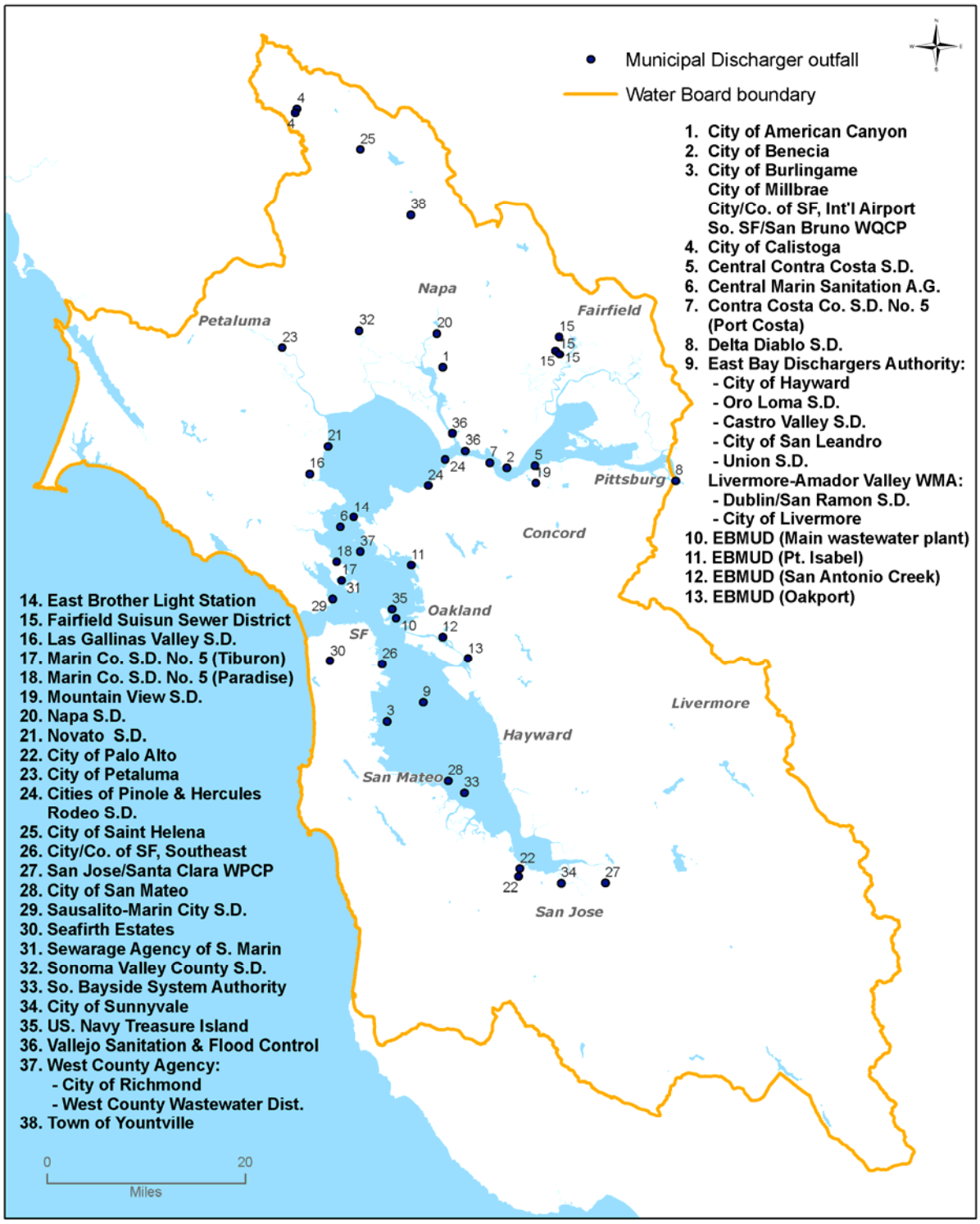
Discharger	NPDES Permit No.	Existing Order No.	Existing Order Adoption Date	Existing Order Expiration Date
Industrial Wastewater Discharger (Non-Petroleum Refinery):				
C&H Sugar and Crockett Community Services District	CA0005240	R2-2007-0032	4/11/07	5/31/2012
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	CA0029904	R2-2004-0026	5/19/04	6/30/09
The Dow Chemical Company	CA0004910	01-142	11/28/01	10/31/06
General Chemical West, LLC	CA0004979	R2-2002-0071[3]	6/19/02	5/31/07
GWF Power Systems L. P. Site I	CA0029106	R2-2005-0018	5/18/05	4/19/10
GWF Power Systems L. P. Site V	CA0029122	R2-2005-0019	5/18/05	4/19/10
Pacific Gas and Electric Company (PG&E)	CA0030082	R2-2006-0010	2/8/06	3/31/11
Rhodia, Inc.	CA0006165	R2-2004-0042	6/16/04	7/31/09
San Francisco, City and County of, San Francisco International Airport, Industrial	CA0028070	R2 2007-0060	8/8/08	9/30/12
Mirant Delta, LLC	CA0004880	R2-2002-0072	6/19/02	5/31/07
Mirant Potrero LLC	CA0005657	R2-2006-0032	5/10/06	12/31/08
USS-Posco Industries	CA0005002	R2-2006-0029	5/10/06	6/30/11
Industrial Wastewater Discharger (Petroleum Refinery):				
Chevron Products Company	CA0005134	R2-2006-0035	6/14/06	6/13/11
ConocoPhillips	CA0005053	R2-2005-0030	6/15/05	8/31/10
Shell Oil Products US and Equilon Enterprises LLC	CA0005789	R2-2006-0070	10/11/06	10/31/11
Tesoro Refining & Marketing Co.	CA0004961	R2-2005-0041	9/21/05	11/30/10
Valero Refining Company	CA0005550	R2-2002-0112	10/16/02	11/30/07

[2] The individual permits specified in these orders are scheduled for reissuance in 2007 and the first calendar quarter of 2008, prior to the effective date of this Order.

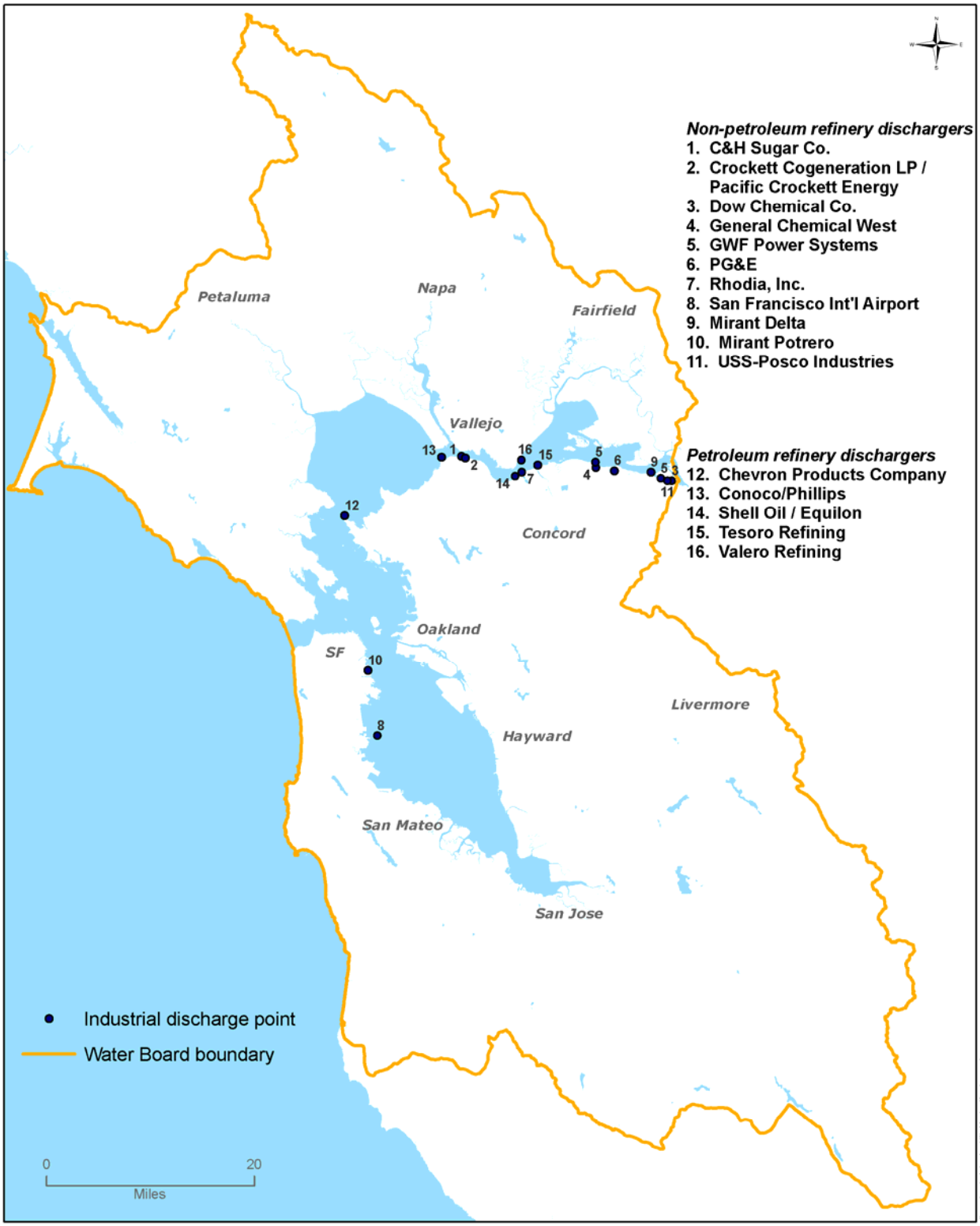
[3] The Regional Water Board adopted Order R2-2007-0065 on August 8, 2007, terminating the individual discharge permit for General Chemical West LLC effective April 1, 2008.

ATTACHMENT C – MAP OF MUNICIPAL AND INDUSTRIAL DISCHARGERS

Municipal Discharger outfall locations



Industrial Discharge Outfalls



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Dischargers must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Dischargers shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Dischargers shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Dischargers shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Dischargers to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Dischargers shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Dischargers may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If a Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. A Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by a Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Dischargers wish to continue an activity regulated by this Order after the expiration date of this Order, the Dischargers must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of a Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to a Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Dischargers shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Dischargers shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

PLUS

For Industrial Dischargers that are corporations:

2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For Industrial Dischargers that are partnerships or sole proprietorships:

2. All permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, State, federal, or other public agency:

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3).).

PLUS, for all Dischargers:

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If a Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Dischargers shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Dischargers become aware of the circumstances. A written submission shall also be provided within five (5) days of the time a Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Dischargers shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

For Municipal Dischargers:

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

For Industries:

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Dischargers shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Dischargers shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When a Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

   a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

   d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Dischargers shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the Self-Monitoring Program, Part A, adopted August 1993 (SMP, Attachment G of this Order). The MRP and SMP may be amended by the Executive Officer pursuant to US EPA regulations 40 CFR122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current US EPA methods, or that have been approved by the US EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board's Quality Assurance Program. The Regional Water Board will find a Discharger in violation of the limitation if the discharge concentration exceeds the effluent limitation and the Reporting Level for the analysis for that constituent.

C. Minimum Levels. For compliance monitoring, analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L approximately equal to parts per billion (ppb).

According to the SIP, method-specific factors can be applied. In such cases, this additional factor must be applied in the computation of the Reporting Level. Application of such factors will alter the Reporting Level from the Minimum Level for the analysis. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level value is the lowest calibration standard. At no time is a Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. The table below indicates the highest minimum level that the Discharger's laboratory must achieve for calibration purposes.

Constituent	Minimum Level	Units
Mercury	0.0005	µg/L

II. MONITORING LOCATIONS

The Dischargers shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Discharge point indicated in individual NPDES permits for discharge from the Discharger's wastewater treatment plant (often but not always E-001)	Location as indicated in individual NPDES permits for mercury or other toxic pollutants For C&H Sugar Company, location is M-002. For Mirant Delta, LLC, locations are E-001B through to and including E-001I. For Mirant Potrero, LLC, location is E-001C. For San Francisco International Airport, location is EFF-001A for both its Sanitary and Industrial Plants (or at the Discharger's option, the locations are at EFF-001-Ind for the Industrial Plant and EFF-001-San for the Sanitary Plant for monitoring compliance with the different concentration based limits for each facilitiy). Discharge flow rates shall be at location EFF-001-Ind for the Industrial Plant, and EFF-001-San for the Sanitary Plant.	As described in individual NPDES permits for mercury or other toxic pollutants

III. EFFLUENT MONITORING REQUIREMENTS

The Dischargers shall monitor mercury in effluent as shown in Table E-2 below and reported on the form included in the next section:

Table E-2. Mercury Monitoring Requirements

Parameter	Units[1]	Sample Type[2]	Minimum Sampling Frequency[3,4]
Total mercury[5]	µg/L	C-24 or Grab[6]	Monthly for Major Dischargers (see Table 1A and 1B)
			Quarterly for Minor Dischargers (see Table 1A and 1B), except as otherwise indicated below
			Annually for East Brothers Light Station Inc. Marin County Sanitary District No. 5, Paradise Cove Seafirth Estates Company and Property Owners
Methylmercury[7]	µg/L	C-24 or Grab	Quarterly for Dischargers with Average Annual Mass Limits greater than or equal to 0.08 kg/yr
			Semi-annually for Dischargers with Average Annual Mass Limits between 0.08 and 0.04 kg/yr
			Annually for Dischargers with Average Annual Mass Limits less than or equal to 0.04 kg/yr

(1) Unit Abbreviation: µg/L = micrograms per liter

(2) Sample Type: C-24 = 24-hour composite. 24-hour composites may be made up of discrete grab samples collected over a 24-hour period, or may be collected using automatic compositing equipment.

If using compositing equipment, the Discharger shall implement all feasible ultra clean techniques to reduce sample contamination (such as use of ultra clean Teflon tubing).

(3) Intermittent or seasonal dischargers shall collect samples during those months for which a discharge occurs.

(4) Monitoring frequency: Monitoring frequency may be increased subsequent to reissuance of this Order.

(5) Total mercury: The Dischargers shall use ultra-clean sampling (USEPA 1669), and ultra-clean analytical methods (USEPA 1631) for total mercury monitoring.

(6) Grab Samples shall be collected coincident with composite samples collected for the analysis of other regulated parameters.

(7) Methylmercury: These Dischargers shall use ultra-clean sampling (USEPA 1669) to collect unfiltered methylmercury samples, and ultraclean analytical methods (USEPA 1630/1631, Revision E) with a method detection limit of 0.02 ng/L.

IV. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Dischargers shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping.

B. Individual Reporting in Self Monitoring Reports (SMRs)

1. Compliance with CIWQS

At any time during the term of this permit, the State or Regional Water Board may notify the Dischargers to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Dischargers shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Due Dates and Information Required for SMRs

a. Report Data with Routine SMR

The Dischargers shall submit mercury data collected as part of this Order in the regular monthly or quarterly Self Monitoring Reports (SMR) required in each Discharger's individual permit. As required in each Discharger's individual permit, for those Dischargers required to report monthly, monthly reports shall be due no later than 30 days after the end of each calendar month. For those Dischargers required to report quarterly in its individual permit, quarterly reports are due 30 days after the end of each calendar quarter.

(i) For Industrial Dischargers claiming an effluent credit for recvcled water use pursuant to Provision V.C.5, the amount of credit claimed for that month shall be reported monthly to the Municipal Discharger that supplied the recycled water. The reporting from the Industrial Discharger to the Municipal Discharger shall be completed no later than 15 days following the end of the

calendar month. The municipal and industrial Dischargers shall then include this information in their respective monthly (or quarterly) and annual SMRs.

(ii) If a Discharger monitors mercury more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

b. **Annual SMR and Required Forms**
Annual SMRs are due February 1 following each calendar year. Each Discharger shall provide its mercury information on the forms shown at the end of this section (pages E-9 through E-13) as an attachment to the cover letter for the Discharger's annual SMR required by its individual permit. Furthermore, by February 1, each Discharger shall send an additional copy of its completed forms to the Regional Water Board by email (in PDF), mail, or fax. This duplicate reporting is necessary to facilitate the Regional Water Board's compilation of the data for compliance determination with the group annual average limitation from all affected Dischargers. Dischargers not required by their individual permits to submit annual SMRs shall still submit annual SMRs for mercury as described in this subsection. The reporting required in this subsection "b." is waived only if the Discharge participates in the Group Compliance Reporting described in IV.C, below.

3. **Monitoring Periods**
Monitoring periods for all required monitoring shall be completed according to the following schedule:

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Monthly	Effective date of permit	1st day of calendar month through last day of calendar month
Quarterly	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Semiannually	Effective date of permit	January 1 through June 30 July 1 through December 31
Annually	Effective date of permit	January 1 through December 31

4. **Reporting of ML or RL, DNQ, and ND, and Establishing Calibration Standards**
The Dischargers shall report with each sample result the applicable Minimum Level (ML) or Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Dischargers shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is a Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. **Reporting Data in Tabular Format**
   The Dischargers shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with effluent limitations. The Dischargers are not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Dischargers shall electronically submit the data in a tabular format as an attachment.

6. **Cover Letter for SMR**
   Each Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs and any exceedances of trigger levels; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation or trigger level exceedance.

7. **Signatory and Certification of SMR**
   SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   ATTN: NPDES Wastewater Division

8. **Optional Electronic Reporting System**
The Dischargers have the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt.

C. Optional Group Compliance Reporting

As an alternative to IV.B.2.b. above, each Discharger at its option, may submit its annual mercury discharge forms to a regional entity, such as the

- Bay Area Clean Water Agencies (BACWA) for Dischargers listed in Table 4A, and non-petroleum refinery Industrial Dischargers listed in Table 4B (provided these Industrial Dischargers have made prior arrangement with BACWA to report on their behalf), of the Order, at
  BACWA
  P.O. Box 24055, MS 702
  Oakland, CA 94623
  ATTN: SF Bay Mercury Watershed Wastewater Permit Compliance Reporting

or

- Western State Petroleum Association (WSPA) for Petroleum Refinery Industrial Dischargers listed in Table 4B of the Order, at
  WSPA
  1415 L Street, Suite 600
  Sacramento, CA 95814
  ATTN: SF Bay Mercury Watershed Wastewater Permit Compliance Reporting

If the Discharger chooses this alternative, it shall indicate in the cover letter of its annual report due to the Regional Water Board on February 1st of its intent and commitment to report with a group by February 15th. **Each Discharger shall provide its mercury information on the form shown at the end of this section** by February 15th so as to allow the respective regional entity to provide compiled information to the Regional Water Board as indicated below. If the Discharger fails to meet its commitment, it will be subject to enforcement action by the Regional Water Board for failure to meet the February 1st reporting deadline and requirement.

1. Compliance Report of Mercury Discharge Levels

By April 1st of each year, the Dischargers' group will submit a report describing the group's mercury discharges for the preceding calendar year. The report will contain the following:

- Summary tables depicting each Discharger's annual and monthly flows, mercury concentrations, and mercury mass loads, calculated as described

in Effluent Limitations III.A. and B. of the Order, and the sum of all the individual Dischargers' annual mass loads (if the Dischargers' group did not receive completed forms from the each group member, the sum should be left blank along with blank rows or columns left in the summary tables those group members);

- An analysis of the effluent data, including discussion of all statistical methods used;
- A discussion of apparent trends in mercury loading of each Discharger; and
- An electronic file containing all the data, in a format compatible with the Regional Water Board's Electronic Reporting System or California Integrated Water Quality System.
- Copies of the completed forms from each Discharger who provided forms.

2. Report on Mercury Reduction Efforts

By April 1st of each year, the Dischargers' group will submit a report describing their mercury reduction efforts. This report will contain the following:

a. A discussion of events that may have affected mercury loading for the preceding calendar year; and

b. A description of mercury source control projects, planned or under way, including where applicable, but not limited to:

   i. descriptions of project activities; and

   ii. implementation schedules for planned source control projects; and

   iii. estimates of mercury mass loads that can be avoided through program activities unrelated to normal treatment, including recycled water delivered, summarized by activity if appropriate.

San Francisco Bay Regional Water Quality Control Board

Annual Mercury Information Reporting Form
Part 1 of 3 – Basic Information

Complete and return all 3 parts of this form to the Regional Water Board no later than February 1st in your Annual Self Monitoring Report, to report on the previous calendar year. You must also mail, fax, or email PDF file of a second copy of this completed form to the address below. In lieu of this dual reporting to the Regional Water Board, you may complete one set of these forms and report through a group in accordance with MRP Section IV.C. (see page E-6).

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attention: SF Bay Mercury Watershed Wastewater Permit Compliance Reporting
Email: MercuryWasteWaterShed@waterboards.ca.gov
Fax: (510) 622-2460

Name of Discharger: _____

Individual NPDES Permit Number(s): _____

Discharger Contact Person: _____

Contact Person Phone Number: _____

Contact Person Email: _____

Calendar Year Reporting: _____ (Example: for data collected in 2009, enter "2009")

Certification:

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature of Responsible Discharger Representative Date

_____
Print Name and Title

San Francisco Bay Regional Water Quality Control Board

Annual Mercury Information Reporting Form
Part 2 of 3 – Mercury Data

Discharger: _____

Calendar Year Reporting: _____ Monitoring Station: _____

Use separate Part 2 sheets for multiple monitoring stations

☐ A Discharger reporting data to the optional Electronic Report System (ERS), may check and initial this box to certify that its **mercury data in ERS are complete and correct**, if it wishes to skip this part (Part 2) of the Annual Mercury Information Reporting Form requirement. Any recycled water adjustments must still be shown on this sheet.

Month	Sample Date	Effluent Flow (mgd) Enter the effluent flow for only the days when mercury was sampled.	Mercury Concentration (µg/L)	Average Monthly Mass Load (kg/mo)
			Only fill in boxes for month(s) sampled. Indicate "no data" for month(s) not sampled. Only provide total mass load if sampled every month.	
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
Total				
Average				

Note: if more than one sample in a month at the same station, report flows and concentrations for all sample days above, and calculate average monthly mass load in accordance with the methodology described in Effluent Limitations III of this Order.

Comments on data (if any):

For Dischargers claiming an effluent credit for recycled wastewater use pursuant to Provision V.C.5 of the Order, please indicate the credit(s) that will be applied to the mass loads listed above, and show on the back of this sheet the credit calculation and basis (use additional sheets if necessary). For Dischargers who provide or use recycled wastewater tor industrial supply pursuant to Provision V.C.5 of the Order, please indicate any adjustments that have been applied to the mass loads listed above.

San Francisco Bay Regional Water Quality Control Board

Annual Mercury Information Reporting Form
Part 3 of 3 – Source Control Information

Discharger: _____

Calendar Year Reporting: _____

1. Discussion of any events that affected mercury loading for the calendar year:

2. Description of mercury source control projects underway or planned. Each project shall include: (1) description of project activities; (2) implementation schedule(s); and (3) estimates of mercury mass loads that can be avoided through program activities unrelated to normal treatment, summarized by activity if appropriate.

    a. Projects completed or underway during the reporting year:

    b. Projects planned for the near future (include information about expected schedule):

D. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Dischargers to electronically submit self-monitoring reports. Until such notification is given, major Dischargers (See Tables 1A and 1B in cover section of permit) shall submit mercury results as part of their discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). Each Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

Standard Mail	**FedEx/UPS/ Other Private Carriers**
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official US EPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

ATTACHMENT F – FACT SHEET

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List of Tables

ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information
(information not already presented in this Order is shown in bold)

WDID	
Discharger	See Tables 1A and 1B attached to cover page above.
Name of Facility	
Facility Address	
Facility Contact, Title and Phone	See Tables 4A and 4B starting on page 3 above.
Authorized Person to Sign and Submit Reports	**See Tables F-1A and F-1B below.**
Mailing Address	See Tables 4A and 4B starting on page 3 above.
Billing Address	**See Tables F-1A and F-1B below.**
Type of Facility	See Tables 4A and 4B starting on page 3 above.
Major or Minor Facility	See Tables 1A and 1B attached to cover page above.
Threat to Water Quality	**See Tables F-1A and F-1B below.**
Complexity	
Pretreatment Program	
Reclamation Requirements	**Not applicable.**
Facility Permitted Flow	See Facility Design Flow below.
Facility Design Flow	See Tables 4A and 4B starting on page 3 above.
Watershed	**San Francisco Bay**
Receiving Water	**See Tables F-1A and F-1B below.**
Receiving Water Type	

Table. F-1A. Additional Information on Municipal Facilities

Discharger	Authorized Person to Sign and Submit Reports	Billing Address (if different from mailing address)	Threat to Water Quality	Complexity	Pretreatment Program	Receiving Water Type
American Canyon, City of	Robert C. Weil, Public Works Director (707) 647-4550 Also Peter Lee	Same as mailing address	1	A	Y	Estuarine
Benicia, City of	Jerry Gall Superintendent (707) 746-4336	Same as mailing address	2	A	Y	Estuarine
Burlingame, City of	Same as contact	Same as mailing address	2	A	Y	Marine
Calistoga, City of	Paul Wade Public Works Director (707) 746-4336	Same as mailing address	2	B	N	Freshwater
Central Contra Costa Sanitary District	Same as contact	Same as mailing address	1	A	Y	Estuarine
Central Marin Sanitation Agency	Robert Cole Environmental Services Manager (415) 459-1455 ext. 142	Same as mailing address	2	A	Y	Estuarine
Contra Costa County Sanitation District No. 5, Port Costa	Same as contact	Same as mailing address	3	B	N	Estuarine
Delta Diablo Sanitation District	Same as contact	Same as mailing address	1	A	Y	Estuarine
East Bay Dischargers Authority	Charles V. Weir General Manager (510) 278-5910	Same as mailing address	1	A	Y	Marine
Hayward Water Pollution Control Facility						
San Leandro Water Pollution Control Plant						
Oro Loma/Castro Valley Sanitary Districts Water Pollution Control Plant						
Raymond A. Boege Alvarado Wastewater Treatment Plant						
Livermore-Amador Valley Water Management Agency (LAVWMA) Export and Storage Facilities						
Dublin San Ramon Services District Wastewater Treatment Plant						
City of Livermore Water Reclamation Plant						

Discharger	Authorized Person to Sign and Submit Reports	Billing Address (if different from mailing address)	Threat to Water Quality	Complexity	Pretreatment Program	Receiving Water Type
East Bay Municipal Utilities District	Same as contact	EBMUD Accounts Payable P.O. Box 23060 Oakland, CA 94623-2306	1	A	Y	Marine
EBMUD – Wet Weather Facilities	Same as contact	EBMUD Accounts Payable P.O. Box 23060 Oakland, CA 94623-2306	2	A	N	
East Brother Light Station, Inc.[1]	Same as contact	Same as mailing address	3	B	N	Estuarine
Fairfield-Suisun Sewer District	Same as contact	Same as mailing address	1	A	Y	Estuarine
Las Gallinas Valley Sanitary District	Same as contact	Same as mailing address	2	A	N	Estuarine
Marin County (Paradise Cove), Sanitary District No. 5 of	Tim O'Day Wastewater Facility Manager (415) 435-1501	Same as mailing address	3	B	N	Marine
Marin County (Tiburon), Sanitary District No. 5 of	Tim O'Day Wastewater Facility Manager (415) 435-1501	Same as mailing address	2	A	N	Marine
Millbrae, City of	Same as contact	Same as mailing address	2	A	N	Marine
Mt. View Sanitary District	David R. Contreras District Manager (925) 228-5635 ext. 32	Same as mailing address	2	A	N	Estuarine
Napa Sanitation District	Same as contact	Same as mailing address	1	A	Y	Estuarine
Novato Sanitary District	Same as contact	Same as mailing address	2	A	Y	Estuarine
Palo Alto, City of	Same as contact	Same as mailing address	1	A	Y	Estuarine
Petaluma, City of	Same as contact	Same as mailing address	2	A	Y	Estuarine
Pinole, City of	Same as contact	Same as mailing address	3	A	N	Marine
Rodeo Sanitary District	Steven S. Beall Engineer-Manager (510) 799-2970	Same as mailing address	3	A	N	Estuarine
Saint Helena, City of	Same as contact	Same as mailing address	2	B	N	Freshwater
San Francisco, City and County of, San Francisco International Airport, Sanitary	Ernie Eavis	676 McDonnell Road San Francisco, CA 94128	3	B	Y	Marine
San Francisco (Southeast Plant), City and County of	Gregory Mayer Operations Superintendent	Same as mailing address	1	A	Y	Marine

Discharger	Authorized Person to Sign and Submit Reports	Billing Address (if different from mailing address)	Threat to Water Quality	Complexity	Pretreatment Program	Receiving Water Type
San Jose/Santa Clara, Cities of	Same as contact	Same as mailing address	1	A	Y	Estuarine
San Mateo, City of	Same as contact	Same as mailing address	1	A	Y	Marine
Sausalito-Marin City Sanitary District	Same as contact	Same as mailing address	2	A	N	Marine
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[1]	Bonner Buehler Plant Operator (415) 388-1345	Same as mailing address	3	B	N	Marine
Sewerage Agency of Southern Marin	Same as contact	Same as mailing address	2	A	N	Marine
Sonoma Valley County Sanitary District	Same as contact	Same as mailing address	2	A	N	Estuarine
South Bayside System Authority	Same as contact	Same as mailing address	1	A	Y	Marine
South San Francisco and San Bruno, Cities of	Same as contact	Same as mailing address	1	A	Y	Marine
Sunnyvale, City of	Same as contact	Same as mailing address	1	A	Y	Estuarine
US Naval Support Activity, Treasure Island	Patricia McFadden Brac Field Team Leader OR Michael Mentink Environmental Coordinator	Same as mailing address	2	A	N	Marine
Vallejo Sanitation and Flood Control District	Ronald J. Matheson District Manager (707) 644-8949	Same as mailing address	1	A	Y	Estuarine
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	E.J. Shalaby District Manager (510) 222-6700	Same as mailing address	2	A	Y	Estuarine
Yountville, Town of	Don Moore Wastewater Assistant System Supervisor (707) 944-2988	Same as mailing address	2	B	N	Freshwater

Table. F-1B. Additional Information for Industrial Facilities

Discharger	Authorized Person to Sign and Submit Reports	Billing Address (if different from mailing address)	Threat to Water Quality	Complexity	Pretreatment Program	Receiving Water Type
Industrial Wastewater Discharger (Non-Petroleum Refinery):						
C&H Sugar and Crockett Community Services District	Elizabeth M. Crowley Environmental Compliance Manager	Same as mailing address	2	A	N	Enclosed Bay
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	Don Burkard Plant Manager (510) 787-4155	Same as mailing address	2	B	N	Enclosed Bay
The Dow Chemical Company	Greg Dubitsky General Manager (925) 432-5154	Same as mailing address	2	A	N	Enclosed Bay
General Chemical West, LLC	Brad Klock General Manager (925) 458-7359	Same as mailing address	2	B	N	Enclosed Bay
GWF Power Systems L. P., Site I	Neftali Nevarez (925) 431-1445	Same as mailing address	3	C	N	Enclosed Bay
GWF Power Systems L. P., Site V	Neftali Nevarez (925) 431-1445	Same as mailing address	3	C	N	Enclosed Bay
Pacific Gas and Electric Company (PG&E)	David Harnish Site Remediation Manager (925) 866-5882	Same as mailing address	3	B	N	Enclosed Bay
Rhodia, Inc.	Peter Jurichko Plant Manager	Same as mailing address	1	A	N	Enclosed Bay
San Francisco, City and County of, San Francisco International Airport, Industrial	Ernie Eavis Deputy Airport Director	P.O. Box 8097, San Francisco, CA, 94128	1	A	N	Enclosed Bay
Mirant Delta, LLC	James P. Garlick, Sr. Vice President, Operations	Pittsburg Power Plant P.O. Box 192 Pittsburg, CA 94565	1	A	N	Estuary
Mirant Potrero LLC	James P. Garlick, Sr. Vice President, Operations	Mirant Potrero, LLC, Potrero Power Plant, 1201-A Illinois Street San Francisco, CA 94107	2	A	N	Enclosed Bay

Discharger	Authorized Person to Sign and Submit Reports	Billing Address (if different from mailing address)	Threat to Water Quality	Complexity	Pretreatment Program	Receiving Water Type
USS-Posco Industries	David Allen Regulations Manager (925) 439-6290	Same as mailing address	1	A	N	Enclosed Bay
Industrial Wastewater Discharger (Petroleum Refinery):						
Chevron Products Company	J.G. Whiteside General Manager (510) 242-4400	Same as mailing address	1	A	N	Enclosed Bay
ConocoPhillips	J.M. Kenney Manager, San Francisco Refinery (510) 245-4415	Same as mailing address	1	A	N	Enclosed Bay
Shell Oil Products US and Equilon Enterprises LLC	Aamir Farid Refinery Manager (925) 313-3000	Same as mailing address	1	A	N	Enclosed Bay
Tesoro Refining & Marketing Co.	Alan Savage Environmental Manager (925) 335-3490	Same as mailing address	1	A	N	Enclosed Bay
Valero Refining Company	Marcus Cole Senior Environmental Engineer (707) 745-7807	Same as mailing address	1	A	N	Enclosed Bay

A. The Dischargers listed in this Order are currently discharging pursuant to the Order Nos. and National Pollutant Discharge Elimination System (NPDES) Permit Nos. as shown in Attachment B. This Mercury Watershed Permit implements the San Francisco Bay mercury Total Maximum Daily Load (TMDL) adopted by the Regional Water Board on December 13, 2006. The TMDL will be effective once USEPA approves it. Upon this Order's effective date, it will supersede mercury requirements in the Orders listed in Attachment B, or in the Orders that will be adopted by the Regional Water Board in reissuing the expired or expiring NPDES permits prior to the effective date of this Order.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Dischargers herein.

B. The Dischargers listed in Table 1A of the Order own and operate secondary and advanced secondary wastewater treatment facilities as described in their respective Orders. The Dischargers listed in Table 1B of the Order own and operate wastewater treatment facilities as described in their respective Orders. Wastewater is discharged to San Francisco Bay and its tributaries, which are waters of the United States within the San Francisco Bay watershed. Attachment C shows a map of the dischargers subject to this Order.

II. FACILITIES DESCRIPTION

A. Description of Wastewater Treatment

Municipal wastewater treatment plants provide secondary treatment, which includes settling, filtration, and biological treatment. Some plants also provide advanced treatment, which removes additional solids. Removing additional solids removes additional pollutants, like mercury, that adhere to particles. Municipal wastewater treatment plants generally remove over 90% of the mercury in their influent. While the removed mercury is not directly discharged to water, some is returned to the environment through landfills, incinerators, or soil amendments. The primary sources of mercury in municipal wastewater are expected to be human waste and medical and dental facilities.

Industrial Dischargers include petroleum refineries, chemical plants, and other large industrial facilities. The mercury loads depend on the types of activities in which these Dischargers engage. The wastewater treatment facilities also vary depending on the activities. Individual permits, listed in Attachment B, provide further descriptions of treatment processes.

B. Discharge Points and Receiving Waters

The locations of discharge points are shown in Tables 4A and 4B of the Order, above. Treated wastewater is discharged to San Francisco Bay and its tributaries as indicated on Tables 2A and 2B of the Order.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effective effluent limitations contained in current individual permits for the Dischargers subject to this Order are shown in the table below. Information for each Discharger is available in the individual permit and monitoring reports for that Discharger. All limits are specified in ug/l.

Table F-2. Current Individual Permit Mercury Effluent Limits for Municipal Dischargers

Discharger	Average Monthly	Maximum Daily
American Canyon, City of	0.021	0.039
Benicia, City of	0.087	
Burlingame, City of	0.087	
Calistoga, City of	0.020	0.042
Central Contra Costa Sanitary District	0.087	1.0
Central Marin Sanitation Agency	0.087	
Contra Costa County Sanitation District No. 5, Port Costa	No limit because no reasonable potential	
Delta Diablo Sanitation District	0.084	
East Bay Dischargers Authority – Combined Outfall	0.087	
Union S.D. Wet Weather Outfall		0.087
Union S.D. Hayward Marsh	0.087	
LAVWMA Wet Weather Outfall	No limit because no reasonable potential	
East Bay Municipal Utilities Dist. – Main WWTP	0.087	
EBMUD – Point Isabel WWF		0.40
EBMUD – San Antonio Creek WWF		1.0
EBMUD – Oakport WWF		0.25
East Brother Light Station, Inc.	No limit because no reasonable potential	
Fairfield-Suisun Sewer District	0.023	
Las Gallinas Valley Sanitary District	0.087	
Marin County (Paradise Cove), Sanitary District No. 5 of	No limit because no reasonable potential	
Marin County (Tiburon), Sanitary District No. 5 of	0.087	
Millbrae, City of	0.087	
Mt. View Sanitary District	0.021	0.038
Napa Sanitation District	0.087	
Novato Sanitary District	0.087	
Palo Alto, City of	0.023	
Petaluma, City of	0.021	0.04
Pinole, City of	0.087	
Rodeo Sanitary District	0.021	0.041
Saint Helena, City of	0.08	
San Francisco, City and County of, SF International Airport, Sanitary	0.087	1.0

Discharger	Average Monthly	Maximum Daily
San Francisco (Southeast Plant), City and County of	0.087	
San Jose/Santa Clara, Cities of	0.012	2.1
San Mateo, City of	0.087 winter 0.023 summer	
Sausalito-Marin City Sanitary District	0.2	1
Seafirth Estates Company and Property Owners with the Seafirth Estates Subdivision	No limit because no reasonable potential	
Sewerage Agency of Southern Marin	0.087	1
Sonoma Valley County Sanitary District	0.087	1
South Bayside System Authority	0.023	0.034
South San Francisco and San Bruno, Cities of	0.087	
Sunnyvale, City of	0.012	2.1
US Naval Support Activity, Treasure Island	0.087	
Vallejo Sanitation and Flood Control District	0.087	
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	0.087	
Yountville, Town of	0.084	

Table F-3. Current Individual Permit Mercury Effluent Limits for Industries

Discharger	Average Monthly, µg/L	Maximum Daily, µg/L
Industrial Wastewater Discharger (Non-Petroleum Refinery):		
C&H Sugar - 002	0.21	1.0
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	No limit because no reasonable potential	
The Dow Chemical Company	0.084	1
General Chemical West, LLC		1
GWF Power Systems L. P., Site I		0.134
GWF Power Systems L. P., Site V		0.071
Pacific Gas and Electric Company (PG&E)	0.02	0.041
Rhodia, Inc.		0.32
San Francisco, City and County of, SF International Airport, Industrial	0.087	1
Mirant Delta, LLC	0.165	
Mirant Potrero LLC	0.032	
USS-Posco Industries	No limit because no reasonable potential	
Industrial Wastewater Discharger (Petroleum Refinery):		
Chevron Products Company	0.075	
ConocoPhillips	0.075	
Shell Oil Products US and Equilon Enterprises LLC	0.075	
Tesoro Refining & Marketing Co.	0.019	0.044
Valero Refining Company	0.075	

D. Compliance Summary

There have been no serious exceedances of mercury effluent limitations for the Dischargers in recent years.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges or mercury from the facilities listed in this Order to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Quality Control Board (Regional Water Board) adopted a Water Quality Control Plan for the San Francisco Bay Basin (Region 2) (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to San Francisco Bay Water are as follows:

Table F-4. Basin Plan Beneficial Uses

Receiving Water Name	Beneficial Use(s)
San Francisco Bay and Applicable Tributaries – See individual Order Nos. (Attachment B) for specific Beneficial Uses that apply.	Agricultural Supply (AGR), Cold Freshwater Habitat (COLD), Ocean, Commercial, and Sport Fishing (COMM), Estuarine habitat (EST), Industrial Service Supply (IND), Marine Habitat (MAR), Fish Migration (MIGR), Municipal and domestic Supply (MUN), Navigation (NAV), Industrial Process Supply (PROC), Preservation of Rare and Endangered Species (RARE), Water Contact Recreation (REC1), Noncontact Water Recreation (REC2), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD)

Requirements of this Order implement the Basin Plan.

The Regional Water Board adopted a Basin Plan Amendment on December 13, 2006, that establishes new water quality objectives for mercury, and that establishes the San Francisco Bay Mercury TMDL to attain the new mercury objectives in San Francisco Bay and contiguous bay segments. The new objectives and TMDL become effective after approval by the State Water Board and USEPA. Elevated mercury concentrations currently exist in the tissues of fish, and methylmercury, a highly toxic form of mercury, is a persistent bioaccumulative pollutant. The mercury TMDL calls for reduction of mercury mass loadings to San Francisco Bay. Additional details regarding mercury sources to San Francisco Bay, and technical information related to the San Francisco Bay Mercury TMDL, are provided in the Fact Sheet. The purpose of this Order is to implement the San Francisco Bay Mercury TMDL wasteload allocations for Dischargers listed in Tables 1A and 1B.

2. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the California Toxics Rule and National Toxics Rule and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

3. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal

antidegradation policies. The permitted discharges must be consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

4. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations[1] section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 303(d) list), prepared pursuant to provisions of Section 303(d) of the Federal CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. San Francisco Bay is listed as an impaired waterbody for mercury. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated wasteload allocations.

San Francisco Bay is impaired for mercury because mercury contamination is adversely affecting existing beneficial uses, including sport fishing, preservation of rare and endangered species, and wildlife habitat. Mercury concentrations in San Francisco Bay fish are high enough to threaten the health of humans who consume them. In addition, mercury concentrations in some bird eggs harvested from the shores of San Francisco Bay are high enough to account for abnormally high rates of eggs failing to hatch.

The San Francisco Bay mercury TMDL was adopted by the Regional Water Board on August 9, 2006. The numeric targets, allocations, and associated implementation plan will ensure that all San Francisco Bay segments attain applicable water quality standards, including new mercury water quality objectives indicated in section IV.A.2. to protect and support beneficial uses.

The TMDL allocations and implementation plan focus on controlling the amount of mercury that reaches the Bay and identifying and implementing actions to minimize mercury bioavailability. The organic form of mercury (methylmercury) is toxic and bioavailable, but information on ways of controlling methylmercury production is limited. However, this is an area of active research and strategies for controlling this process are forthcoming. The effectiveness of implementation actions, monitoring to track progress toward targets, and the scientific understanding pertaining to mercury will be periodically reviewed and the TMDL may be adapted as warranted.

The mercury TMDL implementation plan has four objectives: (1) reduce mercury loads to achieve load and wasteload allocations, (2) reduce methylmercury production and consequent risk to humans and wildlife exposed to methylmercury, (3) conduct monitoring and focused studies to track progress and improve the scientific

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

understanding of the system, and (4) encourage actions that address multiple pollutants. The plan establishes requirements for Dischargers to reduce or control mercury loads and identifies actions necessary to better understand and control methylmercury production. In addition, it addresses potential mercury sources and describes actions necessary to manage risks to Bay fish consumers. The adaptive implementation section describes the method and schedule for evaluating and adapting the TMDL and implementation plan as needed to assure water quality standards are attained.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. Section 122.44(d) of the Code of Federal Regulations requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. Water quality-based effluent limitations are included in this permit to implement wasteload allocations which are part of the San Francisco Bay mercury TMDL.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan. A Basin Plan amendment, adopted by the Regional Water Board on August 9, 2006, and corrected by the Regional Water Board Executive Officer on May 23, 2007 (for the WLA for C&H Sugar Co.), was approved by the State Water Board on July 17, 2007. This Basin Plan amendment added two new mercury water quality objectives and vacated an outdated objective. The new objectives apply to all segments of San Francisco Bay, including all marine and estuarine waters contiguous to San Francisco Bay. The new objective to protect people who consume Bay fish applies to fish large enough to be consumed by humans. The objective is 0.2 mg mercury per kg fish tissue (average wet weight concentration measured in the muscle tissue of fish large enough to be consumed by humans). The proposed objective to protect aquatic organisms and wildlife applies to small fish (3–5 cm in length) commonly consumed by the California least tern, an endangered species. This objective is 0.03 mg mercury per kg fish (average wet weight concentration).

These two new objectives replace the water column four-day average marine mercury objective of 0.025 µg/L, which no longer applies to San Francisco Bay waters. Effluent limitations, and provisions contained in this Order are designed to

implement the new objectives in accordance with the implementation provisions of the San Francisco Bay Mercury TMDL, based on available information.

3. Determining the Need for WQBELs

This Order contains WQBELs for mercury. As required by section 122.44(d)(1)(vii), the Regional Water Board is including WQBELs for mercury in this Order that are consistent with the assumptions and requirements of the San Francisco Bay Mercury TMDL wasteload allocation. Based on the water quality monitoring done at the time of the TMDL adoption, which set the wasteload allocation at the level necessary to attain water quality standards, the Regional Water Board has determined that the WQBEL is consistent with the assumptions of the TMDL. Similarly, compliance with the effluent limitations will satisfy the requirements of the TMDL.

The Regional Water Board has developed water quality-based effluent limitations for mercury pursuant to section 122.44(d)(1)(vii), which does not require or contemplate a reasonable potential analysis. Similarly, the SIP at Section 1.3 recognizes that reasonable potential analysis is not appropriate if a TMDL has been developed.

4. WQBEL Calculations

There are two sets of WQBELs in this Order: mass-based and concentration-based.

Mass-based WQBELs

The mass-based WQBEL's are based on the established aggregate wasteload allocations for municipal Dischargers and industrial Dischargers which comprise a portion of the San Francisco Bay mercury TMDL. For the San Francisco Bay mercury TMDL, loads are expressed in terms of annual mercury loads in kilograms per year (kg/yr) because the adverse effects of mercury occur through long-term bioaccumulation. The loads are intended to represent long-term averages and account for long-term variability, including seasonal variability.

The San Francisco Bay mercury TMDL's initial aggregate load limit of 17 kg/yr and associated individual load limits for Municipal Dischargers are shown in Table F-5 below. Also shown are the interim aggregate load limit and associated individual load limits applicable in 10 years, and final wasteloads allocations that apply in 20 years.

The Order implements the 10 and 20 year timeframe for compliance with the interim and final aggregate load limits of the TMDL's wasteload allocations. These timeframes are appropriate to allow Municipal Dischargers time to implement additional measures to reduce their contribution of mercury discharge to San Francisco Bay. The timeframes are as soon as possible because of the high level of uncertainty in pollution prevention methods and other measures envisioned in the TMDL for reducing mercury discharge concentrations from municipalities. As indicated in the TMDL, the other measures that would be necessary include wastewater re-use, pollutant trading, offsets and/or system improvements. The

uncertainties inherent in developing a pollutant trading and offset program warrant this long timeframe as state policies for these programs are still in their initial stages. The development and design of plans for the infrastructure and funding required for significantly increasing wastewater re-use, and system improvements by public agencies also warrant such a timeframe.

Table F-5. TMDL Mass Limits and Wasteload Allocations for Municipal Wastewater Dischargers

Permitted Entity	NPDES Permit	2000–2003 Initial Load Limit (kg/yr)	Interim Load Limit (kg/yr)	Final Allocation (kg/yr)
American Canyon, City of	**CA0038768**	**0.12**	**0.095**	**0.095**
California Department of Parks and Recreation Angel Island State Park	CA0037401	0.013	0.013	0.013
Benicia, City of	CA0038091	0.088	0.088	0.088
Burlingame, City of	CA0037788	0.089	0.089	0.089
Calistoga, City of	CA0037966	0.016	0.016	0.016
Central Contra Costa Sanitary District	CA0037648	2.23	1.8	1.3
Central Marin Sanitation Agency	CA0038628	0.18	0.15	0.11
Delta Diablo Sanitation District	CA0038547	0.31	0.25	0.19
East Bay Dischargers Authority Dublin-San Ramon Services District (CA0037613) Hayward Shoreline Marsh (CA0038636) Livermore, City of (CA0038008) Union Sanitary District, wet weather (CA0038733)	CA0037869	3.6	2.9	2.2
East Bay Municipal Utilities District	CA0037702	2.6[a]	2.1	1.5
East Brother Light Station	CA0038806	0.001	0.000012	0.000012
Fairfield-Suisun Sewer District	**CA0038024**	**0.22**	**0.17**	**0.17**
Las Gallinas Valley Sanitary District	CA0037851	0.17	0.13	0.10
Marin County Sanitary District, Paradise Cove	CA0037427	0.00055	0.00055	0.00055
Marin County Sanitary District, Tiburon	CA0037753	0.0099	0.0099	0.0099
Millbrae, City of	CA0037532	0.052	0.052	0.052
Mountain View Sanitary District	**CA0037770**	**0.034**	**0.034**	**0.034**
Napa Sanitation District	CA0037575	0.28	0.23	0.17
Novato Sanitary District	CA0037958	0.079	0.079	0.079
Palo Alto, City of	**CA0037834**	**0.38**	**0.31**	**0.31**
Petaluma, City of	CA0037810	0.063	0.063	0.063
Pinole, City of	CA0037796	0.055	0.055	0.055
Contra Costa County, Port Costa WWTP	CA0037885	0.00072	0.00072	0.00072
Rodeo Sanitary District	CA0037826	0.060	0.060	0.060
Saint Helena, City of	CA0038016	0.047	0.047	0.047
San Francisco, City and County of, San Francisco Airport	CA0038318	0.032	0.032	0.032
San Francisco, City and County of, Southeast Plant	CA0037664	2.7	2.1	1.6
San Jose/Santa Clara WPCP	**CA0037842**	**1.0**	**0.80**	**0.80**
San Mateo, City of	CA0037541	0.32	0.26	0.19
Sausalito-Marin City Sanitary District	CA0038067	0.078	0.078	0.078
Seafirth Estates	CA0038893	0.00036	0.00036	0.00036
Sewerage Agency of Southern Marin	CA0037711	0.13	0.10	0.076
Sonoma Valley County Sanitary District	CA0037800	0.041	0.041	0.041
South Bayside System Authority	CA0038369	0.53	0.42	0.32
South San Francisco/San Bruno WQCP	CA0038130	0.29	0.24	0.18
Sunnyvale, City of	**CA0037621**	**0.15**	**0.12**	**0.12**
US Naval Support Activity, Treasure Island WWTP	CA0110116	0.026	0.026	0.026

Permitted Entity	NPDES Permit	2000–2003 Initial Load Limit (kg/yr)	Interim Load Limit (kg/yr)	Final Allocation (kg/yr)
Vallejo Sanitation & Flood Control District	CA0037699	0.57	0.46	0.34
West County Agency, Combined Outfall	CA0038539	0.38	0.30	0.23
Yountville, Town of	CA0038121	0.040	0.040	0.04
Total		***17*** [b]	***14*** [b]	***11*** [b]

Notes to Table F-5:

Bold text indicates advanced secondary treatment.

[a] This allocation includes wastewater treatment and all wet weather facilities.

[b] Total differs slightly from the column sum due to rounding.

The San Francisco Bay mercury TMDL's wasteload allocations for industrial Dischargers, summing to 1.3 kg/yr, are shown in Tables F-6 and F-7 below.

Table F-6. TMDL Wasteload Allocations for Industrial (Non-Petroleum Refinery) Wastewater Discharges

Permitted Entity	NPDES Permit	Allocation (kg/yr)
C&H Sugar Co.[b]	CA0005240	0.045
Crockett Cogeneration	CA0029904	0.0047
The Dow Chemical Company	CA0004910	0.041
General Chemical	CA0004979	0.21
GWF Power Systems, Site I	CA0029106	0.0016
GWF Power Systems, Site V	CA0029122	0.0025
Hanson Aggregates, Amador Street	CA0030139	0.000005
Hanson Aggregates, Olin Jones Dredge Spoils Disposal	CA0028321	0.000005
Hanson Aggregates, Tidewater Ave. Oakland	CAA030147	0.000005
Pacific Gas and Electric, East Shell Pond	CA0030082	0.00063
Pacific Gas and Electric, Hunters Point Power Plant	CA0005649	0.020
Rhodia, Inc.	CA0006165	0.011
San Francisco, City and Co., SF International Airport Industrial WWTP	CA0028070	0.051
Southern Energy California, Pittsburg Power Plant[b]	CA0004880	0.0078
Southern Energy Delta LLC, Potrero Power Plant[b]	CA0005657	0.0031
United States Navy, Point Molate	CA0030074	0.013
USS-Posco	CA0005002	0.045
Total[a]		**0.45**

Table F-7. TMDL Wasteload Allocations for Petroleum Refinery Wastewater Discharges

Permitted Entity	NPDES Permit	Allocation (kg/yr)
Chevron Products Company	CA0005134	0.34
ConocoPhillips[b]	CA0005053	0.13
Martinez Refining Co. (formerly Shell)	CA0005789	0.22
Ultramar, Golden Eagle	CA0004961	0.11
Valero Refining Company	CA0005550	0.08
Total[a]		**0.9**

Notes to Tables F-6 and F-7:

[a] Total differs slightly from the column sum due to rounding.

[b] Wasteload allocations for industrial wastewater discharges do not include mass from once-through cooling water. The Regional Water Board will apply intake credits to once-through cooling water as allowed by law.

Because wastewater Dischargers regularly monitor and report their discharges, their combined loads can be estimated more precisely than any of the other loads estimated for the San Francisco Bay mercury TMDL. Available data are sufficient to allow statistical analyses that quantitatively characterize variations from year to year. The initial waste load allocations were based on current load estimates computed using available data on effluent mercury concentrations and effluent discharge volumes from 2000 through 2003.

In order to account for the inter-annual variability of discharge given the relatively short data period, current loading for the two wastewater discharge groups (municipal and industrial) was estimated as the upper 99% confidence intervals about the mean. The combined mercury load for all municipal wastewater discharges to San Francisco Bay and its tributaries is about 17 kg/yr. The combined load of the industrial Dischargers and petroleum refineries is about 1.3 kg/yr. Together, these wastewater discharges account for a load of about 18.3 kg/yr, or about 2% of the bay's total mercury load. As stated in the TMDL implementation plan, "if any aggregate mass limit is exceeded, the Regional Water Board will pursue enforcement actions against those individual dischargers whose mass discharges exceed their individual mass limits. "

This Order does not contain requirements for the California Department of Parks and Recreation, Angel Island State Park, the PG&E Hunters Point facility, or the US Navy Point Molate facility, because the wastewater discharges from these facilties have ceased and the Regional Water Board has rescinded their NPDES permits. This Order also does not contain requirements for the three Hanson Aggregates facilities which currently are covered or will soon be covered in general NPDES permits. These facilities comprise a very small portion of the total wastewater mercury load to San Francisco Bay, although mercury TMDL wasteload allocations may be implemented for these facilities in the future through separate actions.

Concentration-based WQBELs

In addition to the mass limits, which are based directly on the TMDL's wasteload allocations, this Order requires Dischargers to meet concentration effluent limitations. This is consistent with the assumptions and requirements of the TMDL, as well as the State Water Board's understanding in Resolution No. 2007-0045 approving the TMDL whcih states in part "that any NPDES permit or permits that implement the San Francisco Bay mercury TMDL will include individual numeric effluent limitations consistent with the assumptions and requirements of waste load allocations for each wastewater discharger, that will be individually enforceable." A primary assumption and requirement of the TMDL is that wastewater dischargers maintain current treatment performance. This is stated in the TMDL and its supporting documents as follows:

- "The watershed NPDES permit for municipal facilities will put in place a set of triggered actions … intended … to ensure that municipal wastewater facilities maintain their ongoing operation, maintenance, and performance." (p. 75, Staff Report for the TMDL, September 2, 2004)
- The TMDL's "conditions are intended … to ensure that industrial wastewater facilities maintain proper operation, maintenance, and performance." (BPA-20, Basin Plan Amendment, August 9, 2006)

Moreover, the TMDL's initial wasteload allocations were calculated from actual discharge data from 2000 to 2003.

To set individual numeric limits consistent with this and the performance levels determined in the TMDL as necessary to attain water quality standards, Regional Water Board staff derived performance based concentration limits for three separate categories of performance using discharge data from the same time period (2000 through 2003) from representative sets of wastewater dischargers. These data were obtained from data reported by the Dischargers to the Regional Water Board's Electronic Reporting System (ERS), or entered into ERS by Regional Water Board staff from the Dischargers' self-monitoring reports. The calculations are described in Appendix F-2 of this Fact Sheet. The three categories of performance are municipal secondary treatment, municipal advanced secondary treatment, and industrial treatment based on petroleum refineries' performance.

The concentration limits for non-petroleum refinery Dischargers were determined using performance data from petroleum refineries (2000-2003). Though the manufacturing and treatment processes at those facilities differ from those at petroleum refineries, using petroleum refinery performance data is consistent with the way the performance based trigger levels were set for all industrial dischargers in the TMDL.

As required by 40 CFR 122.45(d), average monthly and average weekly effluent limits are set for "publically owned treatment plants"; these include the Municipal Dischargers. For Industrial Dischargers, this regulation requires average monthly and maximum daily effluent limits.

Individual mercury mass and concentration effluent limitations are shown in Tables F-8 and F-9 below. These limitations are intended to minimize the potential for adverse effects in the immediate vicinity of discharges and to ensure that wastewater facilities maintain proper operation, maintenance, and performance.

Table F-8. Municipal -- Individual Mercury Effluent Limitations

Permitted Entity	Average Annual Effluent Limit[1,2] (kg/yr)	Effective in 10 years Average Annual Effluent Limit[(1,2,5)] (kg/yr)	Effective in 20 years Average Annual Effluent Limit[(1,2,5)] (kg/yr)	Average Monthly Effluent Limit[2] (µg/L)	Average Weekly Effluent Limit[2] (µg/L)
American Canyon, City of	0.12	0.095	0.095	0.025	0.027
Benicia, City of	0.088	0.088	0.088	0.066	0.072
Burlingame, City of	0.089	0.089	0.089	0.066	0.072
Calistoga, City of	0.016	0.016	0.016	0.066	0.072
Central Contra Costa Sanitary District	2.23	1.8	1.3	0.066	0.072
Central Marin Sanitation Agency	0.18	0.15	0.11	0.066	0.072
Delta Diablo Sanitation District	0.31	0.25	0.19	0.066	0.072
East Bay Dischargers Authority, including City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Livermore-Amador Valley Water Management Agency (LAVWMA), Dublin San Ramon Services District, and City of Livermore	3.6	2.9	2.2	0.066	0.072
East Bay Municipal Utilities District, including Wastewater Treatment Plant and Wet Weather Facilities	2.6	2.1	1.5	0.066	0.072
East Brother Light Station, Inc.[3]	0.00001	0.000012	0.000012	0.066	0.072
Fairfield-Suisun Sewer District	0.22	0.17	0.17	0.025	0.027
Las Gallinas Valley Sanitary District	0.17	0.13	0.10	0.066	0.072
Marin County (Paradise Cove), Sanitary District No. 5 of	0.00055	0.00055	0.00055	0.066	0.072
Marin County (Tiburon), Sanitary District No. 5 of	0.0099	0.0099	0.0099	0.066	0.072
Millbrae, City of	0.052	0.052	0.052	0.066	0.072
Mt. View Sanitary District	0.034	0.034	0.034	0.025	0.027
Napa Sanitation District	0.28	0.23	0.17	0.066	0.072
Novato Sanitary District	0.079	0.079	0.079	0.066	0.072
Palo Alto, City of	0.38	0.31	0.31	0.025	0.027
Petaluma, City of	0.063	0.063	0.063	0.066	0.072

Permitted Entity	Average Annual Effluent Limit[1,2] (kg/yr)	Effective in 10 years Average Annual Effluent Limit[(1,2,5)] (kg/yr)	Effective in 20 years Average Annual Effluent Limit[(1,2,5)] (kg/yr)	Average Monthly Effluent Limit[2] (µg/L)	Average Weekly Effluent Limit[2] (µg/L)
Pinole, City of	0.055	0.055	0.055	0.066	0.072
Contra Costa County Sanitation District No. 5, Port Costa	0.00072	0.00072	0.00072	0.066	0.072
Rodeo Sanitary District	0.060	0.060	0.060	0.066	0.072
Saint Helena, City of	0.047	0.047	0.047	0.066	0.072
San Francisco, City and County of, San Francisco International Airport, Sanitary	0.032	0.032	0.032	0.066	0.072
San Francisco (Southeast Plant), City and County of	2.7	2.1	1.6	0.066	0.072
San Jose/Santa Clara, Cities of	1.0	0.80	0.80	0.025	0.027
San Mateo, City of	0.32	0.26	0.19	0.066	0.072
Sausalito-Marin City Sanitary District	0.078	0.078	0.078	0.066	0.072
Seafirth Estates Company and Property Owners within the Seafirth Estates Subdivision[3]	0.00036	0.00036	0.00036	0.066	0.072
Sewerage Agency of Southern Marin	0.13	0.10	0.076	0.066	0.072
Sonoma Valley County Sanitary District	0.041	0.041	0.041	0.066	0.072
South Bayside System Authority	0.53	0.42	0.32	0.066	0.072
South San Francisco and San Bruno, Cities of	0.29	0.24	0.18	0.066	0.072
Sunnyvale, City of	0.15	0.12	0.12	0.025	0.072
US Naval Support Activity, Treasure Island	0.026	0.026	0.026	0.066	0.072
Vallejo Sanitation and Flood Control District	0.57	0.46	0.34	0.066	0.072
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	0.38	0.30	0.23	0.066	0.072
Yountville, Town of	0.040	0.040	0.040	0.066	0.072
Aggregate Mass Emission Limit (kg/yr)	17[4]	**14**	**11**	Not Applicable	Not Applicable

Footnotes:

(1) Compliance with the Average Annual Effluent Limitations is determined annually for each Municipal Discharger each calendar year, and is attained if the sum of the individual Municipal Dischargers' mercury mass emissions, calculated as described below, is not greater than the Aggregate Mass

Emission Limit of 17 kg/yr (or 14 kg/yr in 10 year, or 11 kg/yr in 20 years). If the sum of all individual Municipal Dischargers' mercury mass emission(s) is greater than 17 kg/yr (or 14 kg/yr in 10 year, or 11 kg/yr in 20 years), the Municipal Discharger(s) whose mercury mass emission(s) exceed(s) its (their) individual limitation(s) in Table 6, shall be deemed to be in violation of its (their) mercury mass limitation(s). For compliance determination, mass emissions shall be determined as defined below:

a. The total annual aggregate mass emission shall be the sum of the individual annual mass emissions from each Municipal Discharger. The sum shall be rounded to the nearest kilogram for comparison with the Aggregate Mass Emission Limit.

b. The annual average mass emission for each Discharger shall be computed for the period January 1 through December 31, annually. Calendar timeframes for discharge limitations are consistent with federal regulations and USEPA guidance. If there are delays in USEPA's approval of the TMDL such that this Order does not become effective until well into a calendar year, say one calendar quarter, it is appropriate to delay compliance determination with the annual limit until the next full calendar year so as to not bias the annual mass emission calculation with data from just the remainder of the calendar year.

c. The annual average mass emission for each Discharger listed in Table F-8 above shall be the sum of monthly emissions on a calendar year basis and computed as follows:

$$Annual\ Mass\ Emission, kg/year = \sum \left(Monthly\ Mass\ Emission\ Rates, kg/month \right)$$

where

$$Monthly\ Mass\ Emission, kg = \left(\frac{0.003785}{N} \right) * \left(\sum_{i=1}^{N} Q_i C_i \right) * 30.5 = \frac{0.1154425}{N} * \left(\sum_{i=1}^{N} Q_i C_i \right)$$

and where

C_i = mercury concentration of each individual sample, µg/l
Q_i = Discharger flow rate on date of sample, millions of gallons per day (mgd)
N = number of samples collected during the month
0.003785 = conversion factor to convert (µg/l)*(mgd) into kg/day
30.5 = number of days in a standard month
0.1154425= product of (conversion factor)·(number of standard days per month)

(2) This Order requires the Dischargers to achieve an analytical minimum level based on that specified in USEPA Method 1613.

Minimum Levels

Constituent	Minimum Level	Units
Mercury	0.0005	µg/L

(3) This Discharger serves domestic customers but is not a municipal government agency.

(4) Total differs slightly from the column sum due to rounding to the nearest kilogram.

(5) The first Annual Average Effluent Limits represent the San Francisco Bay Mercury TMDL's initial mass limits for Municipal Dischargers. In accordance with the TMDL and the compliance schedule provision that the Regional Water Board will submit to USEPA for approval, the Municipal Dischargers listed in this table have up to 10 years from the effective date of this Order to achieve the "Effective in 10 Years Annual Average Effluent Limits" and its respective Aggregate Annual Mass Emission Limit, and up to 20 years to achieve the "Effective in 20 Years Annual Average Effluent Limits" and its respective Aggregate Annual Mass Emission Limit listed in Table 6.

Table F-9. Industrial -- Individual Mercury Effluent Limitations

Permitted Entity	Annual Average Effluent Limit[1,2] (kg/yr)	Monthly Average Effluent Limit[2] (µg/L)	Daily Maximum Effluent Limit[2] (µg/L)
Industrial Wastewater Discharger (Non-Petroleum Refinery):			
C&H Sugar and Crockett Community Services District	0.045	0.079	0.12
Crockett Cogeneration, LP and Pacific Crockett Energy, Inc.	0.0047	0.079	0.12
The Dow Chemical Company	0.041	0.079	0.12
General Chemical West, LLC	0.21	0.079	0.12
GWF Power Systems L. P., Site I	0.0016	0.079	0.12
GWF Power Systems L. P., Site V	0.0025	0.079	0.12
Pacific Gas and Electric Company	0.00063	0.079	0.12
Rhodia, Inc.	0.011	0.079	0.12
San Francisco, City and County of, SF International Airport, Industrial	0.051	0.079	0.12
Mirant Delta, LLC	0.0078	0.079	0.12
Mirant Potrero LLC	0.0031	0.079	0.12
USS-Posco Industries	0.045	0.079	0.12
Industrial Wastewater Discharger (Petroleum Refinery):			
Chevron Products Company	0.34	0.079	0.12
ConocoPhillips	0.13	0.079	0.12
Shell Oil Products US and Equilon Enterprises LLC	0.22	0.079	0.12
Tesoro Refining & Marketing Co.	0.11	0.079	0.12
Valero Refining Company	0.08	0.079	0.12
Aggregate Mass Emission Limit[3] (kg/yr)	**1.3**	Not Applicable	Not Applicable

Footnotes:

(1) Compliance with the Average Annual Effluent Limitations is determined annually for each Industrial Discharger each calendar year, and is attained if the sum of the individual Industrial Dischargers' mercury mass emissions, calculated as described below, is not greater than the Aggregate Mass Emission Limit of 1.3 kg/yr. If the sum of the individual Industrial Dischargers' mercury mass emission(s) is greater than 1.3 kg/yr, the Industrial Discharger(s) whose mercury mass emission(s) exceed(s) its (their) individual limitation(s) in Table 6, shall be deemed to be in violation of its (their) mercury mass limitation(s). For compliance determination, mass emissions shall be determined as defined below:

a. The total annual aggregate mass emission shall be the sum of the individual annual mass emissions from each Industrial Discharger. The sum shall be rounded to the nearest kilogram for comparison with the 1.3 kg/yr.

b. The annual average mass emission for each Discharger shall be computed for the period January 1 through December 31, annually. Calendar timeframes for discharge limitations are consistent with federal regulations and USEPA guidance. If there are delays in USEPA's approval of the TMDL such that this Order does not become effective until well into a calendar year, say one calendar quarter, it is appropriate to delay compliance determination with the annual limit until the next full calendar year so as to not bias the annual mass emission calculation with data from just the remainder of the calendar year.

c. The annual average mass emission for each Discharger listed in Table F-9 above shall be the sum of monthly emissions on a calendar year basis and computed as follows:

$$Annual\ Mass\ Emission, kg/year = \sum (Monthly\ Mass\ Emission\ Rates, kg/month)$$

where

$$Monthly\ Mass\ Emission, kg = \left(\frac{0.003785}{N}\right) * \left(\sum_{i=1}^{N} Q_i C_i\right) * 30.5 = \frac{0.1154425}{N} * \left(\sum_{i=1}^{N} Q_i C_i\right)$$

and where

C_i = mercury concentration of each individual sample, µg/l
Q_i = Discharger flow rate on date of sample, millions of gallons per day (mgd)
N = number of samples collected during the month
0.003785 = conversion factor to convert (µg/l)*(mgd) into kg/day
30.5 = number of days in a standard month
0.1154425= product of (conversion factor)·(number of standard days per month)

(2) This Order requires the Dischargers to achieve an analytical minimum level based on that specified in USEPA Method 1613.

Minimum Levels

Constituent	Minimum Level	Units
Mercury	0.0005	µg/L

(3) Total differs slightly from the column sum due to rounding, and from several industrial dischargers discontinuing their discharges.

5. Satisfaction of Anti-Backsliding Requirements

Effluent limits based on a TMDL are afforded certain latitude in terms of anti-backsliding. As outlined in the State Water Board's Office of Chief Counsel memorandum pertaining to offsets, pollutant trading, and market programs, dated November 22, 2006, when a TMDL is in place, the Clean Water Act and the Porter-Cologne Water Quality Control Act give latitude to develop means of achieving compliance with water quality standards, subject to certain limitations. Water quality based objectives may be adjusted upwards or downwards to be consistent with the TMDL. While the Clean Water Act's anti-backsliding provisions generally prohibit allowing less stringent effluent limitations, section 402(o) contains an express exception applicable when a TMDL is in place. It allows relaxation consistent with the TMDL if "the cumulative effect of all such revised effluent limitations based on such total maximum daily load or waste load allocation will assure attainment of such water quality standards. . . ." 33 U.S.C. § 1313(d)(4)(A)(i). Federal regulations bolster this and require WQBELs to be "consistent with the assumptions and requirements of any available wasteload allocations." 40 CFR 122.44(d)(1)(vii)(B). As set forth in the above-mentioned memorandum, "…as long as the cumulative effect of all WQBELs for NPDES-permitted discharges to a water is consistent with the assumptions and requirements of an applicable TMDL, the regional water board may adjust WQBELs using a variety of mechanisms that are designed to achieve the attainment of water quality standards."

Additionally, under the State Board Order WQ 2001-06 (Tosco Order[2]), the State Water Board held that a "limit that implements or is consistent with the wasteload allocations in a TMDL complies with the exception in Section 303(d)(4)."

It is important to keep the above principles in mind when implementing a TMDL. In any event, in this specific case, anti-backsliding is not even applicable. Anti-backsliding prevents backsliding from comparable limits (Tosco Order). All of the proposed limits in the proposed permit are either equal to or consistent with the assumption and requirements of the TMDL. The previous limits were not. Therefore, they are not comparable.

Even if anti-backsliding did apply here, for the current individual permits that specify water quality based mass effluent limits for mercury, Section 303(d)(4) allows relaxation of those limits because the annual average mass limits in this Order are based on the wasteload allocations in the San Francisco Bay mercury TMDL, and the implementation of this TMDL will assure attainment of the water quality standard for mercury.

Similarly, section 303(d)(4) also allows backsliding for the ten Municipal Dischargers and eight Industrial Dischargers whose monthly concentration limits are less stringent than their current (water quality based) individual permits. The newly calculated concentration limits are based on the dataset used to derive the wasteload allocations of the TMDL. They also reflect the levels that, as determined by the TMDL, will attain the water quality objective for mercury. Therefore, they are consistent with the assumptions and requirements of the mercury TMDL and will assure attainment of water quality standards, consistent with section 303(d)(4) and 40 CFR 122.44(d)(1)(vii)(B).

Section 402(o)(2)(B)(i) further provides justification for relaxing the ten Municipal and two Industrial (PG&E and Tesoro) Dischargers' concentration limits. This section allows backsliding if new information (other than revised regulations, guidance, or test methods) is available that justifies less stringent limits. The new information is that the basis for these previous limits is not a scientifically reliable indicator for protecting water quality and beneficial uses from mercury. Specifically, the previous permit limits were based directly, or carried over from limits based directly, on the scientifically outdated mercury objective of 0.025 μg/L (or the equally outdated and illegal footnoted criterion of 0.012 μg/L) of the Basin Plan. Further, as a policy matter, anti-backsliding requirements should not canonize bad science or illegally derived limits. Limits based on a TMDL reflect the latest science and will assure attainment of water quality objectives in a coherent and consistent manner that takes into account all loading inputs to a waterbody and which does not penalize good performing dischargers.

[2] The Tosco Order has been upheld in two Court of Appeal decisions, *CBE et al. v. State Water Resources Control Board et al*., 109 Cal.App.4th 1089 (2003) and 132 Cal.App.4th 1313 (2005).

6. Satisfaction of Antidegradation Policy

The Order's mercury effluent limitations, which implement wasteload allocations, have been computed to satisfy the total maximum daily load that will allow the San Francisco Bay to come into attainment with water quality objectives. This Order includes requirements that are part of an overall comprehensive plan to restore mercury levels in San Francisco Bay. Because the TMDL is consistent with protecting existing instream water uses and the level of water quality necessary to protect the existing uses, antidegradation requirements are satisfied. Furthermore, this Order specifies performance based effluent limits that will assure compliance with antidegredation.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

No additional receiving water limits beyond those already specified in the Dischargers' individual permits are necessary in this Order.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

The mercury TMDL contains a requirement to "prepare an annual report that documents mercury loads from each facility, mercury and methylmercury effluent concentrations, and ongoing source control activities, including mercury loads avoided through control actions." Dischargers are therefore required by this Order to report mercury discharge levels and trends, and mercury reduction measurements in Self-Monitoring Reports to facilitate the adaptive management process for implementation of the San Francisco Bay mercury TMDL. A special form is provided for use in compiling information for determining compliance with the group mass limit. Duplicate reporting using the form is required which the Regional Water Board believes is not burdensome for the Dischargers, but will facilitate the Regional Water Board's timely determination of compliance with the group mass limit. Incentive is provided for the optional group reporting by eliminating the duplicative reporting requirement, and allowing the Dischargers a little more time to provide the data. This optional group reporting facilitates adaptive management, and also consolidates the information in one place for ease of access by the public.

The monitoring frequencies specified in the MRP are dependent on each Discharger's contribution of mercury, and its resources to conduct the monitoring. For example, those with higher mercury limits and/or are major dischargers are required to monitor more frequently.

Also, pursuant to USEPA guidance (Technical Support Document, March 1991) the following factors were considered in selecting the frequencies. (The data referenced below are summarized in Appendix F-3.):

- Effluent variability – The individual discharge concentrations are generally not highly variable with the coefficient of variation for a representative set of Dischargers at a median of 0.5 (full range is from about 0.3 up to 2).

- Type of treatment process including retention times – the majority of the treatment processes involves biological processes with a few of the smaller industrial facilities relying upon physical/chemical treatment. For the most part, these systems have long retention times on the order of days up to a week for some systems.

- Compliance history – All Dischargers have complied with their applicable effluent limits for mercury in the past 5 years with very few exceptions. Pursuant to USEPA "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies," dated April 19, 1996, lower frequencies than those proposed in this Order may be appropriate. However, in consideration of the other factors listed here, those Dischargers are required by this Order to monitor at least once per month.

- Cost of monitoring relative to the Discharger's capabilities – Mercury and methylmercury sampling requires use of ultra-clean low detection techniques requiring at least two personnel to properly perform. The analysis is also specialized and costs more for this reason. As indicated in the paragraph above, the monitoring frequency was staggered based on each Discharger's resources to conduct the monitoring.

- Number of monthly samples used in developing the permit limit – previous individual permits have for the most part required monthly monitoring with a few permits requiring weekly or biweekly monitoring and others at quarterly or annual frequencies. Some Dischargers monitored more frequently than required. All these data were used in calculating the wasteload allocations that formed the effluent limits in this Order.

- Environmental significance and nature of the pollutant – Mercury is a pollutant of great concern in San Francisco Bay because it is bioaccumulative and is an impairment to beneficial uses. The Dischargers covered by this Order make up close to 2 percent of the total mercury load to the Bay.

The Regional Water Board finds that these monitoring and reporting requirements bear a reasonable relationship to the Regional Water Board's need for and the benefits obtained from the reports.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in

accordance with section 122.42, are provided in Attachment D. The Dischargers must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. Standard Provisions section V.D does not apply in this Order because it pertains to compliance schedule which is not required in this Order.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Triggers for Additional Mercury Control

Mass and concentration triggers were developed to allow for early required actions in the event an increasing trend in mercury discharge is observed by individual Dischargers. The purpose of the triggers is to evaluate the source of new mercury and identify a method for reduction before levels become elevated.

Consistent with the TMDL, mass triggers for municipal and industrial Dischargers are equivalent to the individual mass limits stated in the Order, but determined monthly, instead of annually, using a rolling 12-month average. This is necessary in order to capture any increases in a more timely fashion to allow development and implementation of reduction measures that may avoid an actual effluent limit violation.

For concentration triggers, there are two broad categories of municipal facilities—those that provide secondary treatment, and those that provide advanced treatment. Facilities providing advanced treatment have better performance, hence lower effluent concentrations than those providing secondary treatment, so the trigger concentrations for advanced facilities are lower than those for secondary treatment facilities.

Consistent with the TMDL implementation plan, the proposed effluent mercury concentration trigger values for municipal secondary treatment facilities are a daily maximum of 0.065 µg/l total mercury (derived from the 99th percentile concentration of effluent data collected from January 2000 to September 2002) and a monthly average of 0.041 µg/l total mercury (derived from the 95th percentile concentration of effluent data collected from January 2000 to September 2002). For facilities providing advanced treatment, the proposed concentration triggers are a daily maximum of 0.021 µg/l total mercury (the 99th percentile concentration) and a monthly average of 0.011 µg/l total mercury (the 95th percentile concentration).

Consistent with the TMDL implementation plan, the proposed effluent trigger concentrations for industrial Dischargers are a daily maximum of 0.062 µg/l total mercury (derived from the 99th percentile concentration of effluent data collected from January 2000 to September 2002) and a monthly average of 0.037 µg/l total mercury (derived from the 95th percentile concentration of effluent data collected from January 2000 to September 2002).

Consistent with the TMDL if a Discharger exceeds either the mass or concentration trigger, the Order requires the Discharger to report the exceedance in its individual Self-Monitoring Report, and to submit a report that:

- Evaluates the cause of the trigger exceedances;
- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances;
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance.

The Order provides for 130 days to provide this report, which allows for 30 days for standard laboratory turnaround on ultra clean samples, plus 40 days for accelerated monitoring to verify and better characterize trigger exceedances, and finally the 60-day timeframe from the TMDL implementation plan to submit the report. The Regional Water Board will pursue enforcement action against Dischargers that do not respond to exceedances of triggers or do not implement actions to correct and prevent trigger exceedances. Determination of appropriate actions will be based on an updated assessment of source control measures and wastewater treatment technologies applicable for the term of each issued or reissued permit.

The TMDL implementation plan requires the permit to specify that an exceedance of a trigger level would trigger the discharger to take corrective actions. The TMDL implementation plan explains that one of the concepts behind requiring triggered actions is to ensure that wastewater dischargers maintain ongoing operation, maintenance, and performance of their treatment facilities. Therefore, it is consistent with this concept for this Order to allow further characterization through accelerated monitoring to determine if ongoing performance was maintained before corrective measures must be taken. Accelerated weekly monitoring for at least six events that would span over two months would provide reasonable and convincing weight of evidence that the first initial trigger was either an anomaly or a spurious source and could be disregarded. These additional samples would also help to characterize the duration and magnitude of the exceedance and help with development of the action plan should one be necessary.

See Appendix F-1 for an example of actions required in response to initial trigger exceedances:

2. Mercury Source Control Program for Municipal Dischargers

The mercury TMDL includes a requirement to “develop and implement effective programs that include but are not limited to pollution prevention to control mercury sources and loading, a plan and schedule of actions and effectiveness measures

applicable for the term of the permit, based on identification of the largest and most controllable sources and an updated assessment of source control measures and wastewater treatment technologies (the level of effort shall be commensurate with the mercury load and performance of the facility) and quantify the mercury load avoided or reduced…" Therefore, this Order contains requirements for source control. Dischargers are responsible for investigating the sources and strategies for controlling those sources. However, a major source of mercury to wastewater treatment plants is from dental offices, and efforts are already underway by municipal wastewater facilities to manage and reduce the amount of mercury amalgam that is discharged from dental offices into the public collection systems. The target for this program is that 85 percent of dental offices in the region will be participating in an amalgam program five years after full adoption of the TMDL.

3. Additional Special Studies for Adaptive Management

The potential availability of wastewater mercury for methylation and biological uptake, and possible local effects of such discharges, is not well understood. Consistent with the TMDL, this Order requires Dischargers to undertake or otherwise support studies to evaluate local impacts and bioavailability. If evidence of local effects from wastewater effluent is discovered, or if municipal wastewater facilities significantly contribute to mercury concentrations in the food web, the Regional Water Board may impose discharge restrictions aimed at minimizing or avoiding adverse impacts.

Due to the uncertainties in assessing the nature of sources and impacts of mercury, the TMDL was designed with an adaptive management approach. In particular, the TMDL implementation plan specifies requirements for Dischargers to:

- Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, the conditions under which mercury methylation occurs, and biological uptake in San Francisco Bay and tidal areas, and
- Conduct or cause to be conducted studies to evaluate the presence or potential for local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges

Consistent with the adaptive management approach, after the activities in the initial years of the permit for evaluating group mercury discharges, collecting methylmercury data of wastewater effluent, conducting source control programs, and engaging in risk management, this Order requires the development of a work plan by Dischargers within the permit term to conduct or participate in management studies. It is intended that information gathered to date will be used to begin the process of evaluating sources and impacts of mercury to identify next steps to control mercury in San Francisco Bay.

These studies may be undertaken by BACWA or WSPA on the Dischargers' behalf, or by such other agents (e.g., CEP, Regional Monitoring Program) as may exist or come into existence for this purpose. The Dischargers are collectively and individually responsible for undertaking such studies. It is the intent of the Regional

Water Board to maximize the use of existing programs and resources for monitoring and research efforts.

4. Risk Reduction Programs

The TMDL requires municipal and industrial wastewater Dischargers to "develop and implement effective programs to reduce mercury-related risks to humans and wildlife and quantify risk reductions resulting from these activities." This provision is based on this requirement. We envision a multi-phase process to develop a regional risk management strategy. The Order requires Dischargers to include public participation in the development process as this could make the programs more effective. The first phase should focus on identifying specific risk-management needs, the appropriate measures to address those needs, and the associated costs and mechanisms to implement the measures. This could reasonably take one to two years to develop. Another year is a reasonable timeframe for municipal entities to secure resources and identify the appropriate mechanisms to start implementing the risk reduction programs.

As indicated in the TMDL, in this effort, the Regional Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Public Health, and other organizations including Dischargers that pursue risk management as part of their mercury-related programs. For an effective and efficient regional program, the Order allows that the activities may be performed by a third party if the Dischargers wish to provide funding for this purpose. The Regional Monitoring Program is one such vehicle because it has an equitable and accepted cost allocation system already in place along with an established stakeholder overview and participation process.

5. Effluent Discharge Adjustment for Recycled Wastewater Use by Industrial Dischargers

As dictated by California Water Code sections 13510 through 13512, the Regional Water Board should support and encourage water recycling facilities. The use of recycled wastewater preserves fresh potable water supply sources. The effluent discharge adjustment (or Adjustment) provided in this Order is to avoid penalizing Dischargers who produce recycled wastewater and Dischargers who use recycled wastewater in industrial processes, and is based on the principles outlined in the Basin Plan at 4.6.1.1. It is also similar to an existing provision in the individual permits for the petroleum refineries.

The Adjustment is only applicable if the mercury in the recycled wastewater is ultimately discharged through an industrial discharger's outfall. The Adjustments are calculated based on mass balance principles and will thus not result in any net increase in mercury loadings to the Bay. The mass Adjustment subtracted from one industrial discharger, is then added to the municipal discharger who supplied the recycled wastewater and who would have otherwise discharged that mercury through its municipal treatment plant discharge outfall. Local impacts from this shifting in load will be minimal because the discharge locations for the two will be to the same receiving water body. This is because the cost of water transport between

facilities that are very far apart would make the reuse project infeasible. Furthermore, this Order's Provision V.C.3 requires Additional Special Studies that will look for the "presence of, or potential for, local effects in the vicinity of wastewater discharges." If any local impacts are determined, the Regional Water Board will require appropriate corrective measures.

A concentration Adjustment is also provided because a typical reuse project involves use of the recycled wastewater in cooling towers or boilers where the concentration of mercury increases through evaporative losses. The blowdown would go to the industrial discharger's sewer and potentially elevate its discharge concentration. Since the concentration limit is established based on past performance, future recycled wastewater use could impact the industrial discharger's compliance with the performance limit. Therefore, a concentration Adjustment is provided. Unlike the mass Adjustment, it is inappropriate to apply the concentration Adjustment in reverse to the municipal discharger because the reason for the Adjustment is to account for evaporative losses. These losses occur at the industrial facility and do not affect the municipal discharger's performance.

However, it may be appropriate some time in the future to provide a concentration Adjustment when a municipal discharger installs advanced recycled wastewater treatment facilities at its treatment plant site (e.g. reverse osmosis) and blends the concentrated waste stream with its effluent prior to discharge. The mass discharged through the municipal discharger's outfall would not increase but the concentration would. No such projects currently exists in this region.

Currently, the only reuse project where an Adjustment would be applied is between Chevron Products Company (Chevron) and the West County Wastewater District. Chevron currently uses about 4 million gallons per day of recycled wastewater. A new reuse project is scheduled to go on line in 2009 that will bring the amount to approximately 7-8 million gallons per day. West County Wastewater District (WCWD) discharges through a joint outfall with the City of Richmond under the West County Agency NPDES permit. Based on this provision, any mass Adjustment subtracted from Chevron would be added to the mass emission reported by the West County Agency prior to determining compliance with the average annual mass limit.

Under this two way Adjustment, for projects like the WCWD and Chevron recycled water project, the allowable mass discharge to the Bay under this Order would be the sum of the WCWD and Chevron individual mass limits that were based on the wasteload allocations in the TMDL. Only if the sum of WCWD's and Chevron's mass discharge exceed the sum of their individual mass limits would there be a real mass discharge greater than that allowed in the TMDL from these two dischargers. Therefore, this Order allows that a violation would only occur from an Adjustment if the sum of the mass discharge from both exceeds the sum of the individual mass limits, and the adjusted mass discharge from Municipal Dischargers as a group exceeds the aggregate mass limit for the Municipal Dischargers.

6. Reopener Provision

Two reopener conditions are provided in the Order. These are based on the TMDL's adaptive implementation provisions as they relate to the final waste load allocations for municipal dischargers. The TMDL implementation plan states at page BPA 26,

> "the final wasteload allocations are expected to be attained through wastewater treatment system improvements and/or implementation of a pollutant offset program. Approximately 10 years after the effective date of the TMDL or any time thereafter, the [Regional] Water Board will consider modifying the schedule for achievement of the wasteload allocations or revisions to wasteload allocations if:
>
> - The State [Water] Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations…"

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will supersede mercury requirements in existing National Pollutant Discharge Elimination System (NPDES) permits. As a step in the WDR adoption process, the Regional Water Board staff has developed this tentative WDR. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharges and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following: (a) paper copies of this Order were relayed to the Dischargers and other interested parties, and (b) the San Francisco Chronicle published a notice that this item would appear before the Regional Water Board in March 2007.

The Regional Water Board received comments on the March 2007 draft requirements. On July 17, 2007, the State Water Board adopted a resolution approving the San Francisco Bay Mercury TMDL (as corrected). This resolution called on the Regional Water Board to include specific limits in the waste discharge requirements implementing the TMDL. The Regional Water Board revised the draft waste discharge requirements in response to the resolution and comments received on the March 2007, draft.

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe the requirements as revised and has provided them with an opportunity to submit their written comments and recommendations on the revisions. This Notification was provided through the following: (a) Dischargers received

paper copies of this Order, (b) interested agencies and persons received notification by email, and (c) the San Francisco Chronicle published a notice in August 2007 that this item would appear before the Regional Water Board.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning the revisions of this Tentative Order. Comments must be submitted either in person or by mail to the attention of **Lila Tang** at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by **5:00 p.m. on Monday, September 13, 2007.**

C. Public Hearing

The Regional Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **November 1, 2007**
Time: 9:00 am
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612
Contact: Lila Tang, (510)622-2425, ltang@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharges and Tentative Order. Oral testimony was heard; however, for accuracy of the record, important testimony was presented in writing.

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/sanfranciscobay where you can access the current agenda for changes in dates and locations. Regional Water Board agenda material including staff's responses to written comments, and revisions to the Tentative Order was posted at this website one week prior to the hearing date, and Dischargers and interested parties were notified by email of their availability.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final Order. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The San Francisco Bay Mercury TMDL, Tentative Order, related documents, any comments received, and other information are available at www.waterboards.ca.gov/sanfranciscobay. These documents are also on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., except from noon to 1:00 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (510) 622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this permit, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to **Lila Tang** at **(510)622-2425, or by email at ltang@waterboards.ca.gov.**

APPENDIX F-1 -- EXAMPLE OF WHEN REQUIRED ACTIONS ARE TRIGGERED

Facility X is subject to the following triggers:

Average Monthly Trigger = 0.041 μg/L
Maximum Daily Trigger = 0.065 μg/L
12-month Mass Emission Trigger = 0.91 kg/yr

A sample collected on May 4th is 0.046 μg/L, with the results received on May 30th by discharger X from its contract laboratory.

Discharger Action: Initiate accelerated monitoring (weekly or more frequent) as soon as practical (within 48 hours) after receipt of sample result above trigger level (0.046 μg/L is above the monthly trigger of 0.041 μg/L).

Discharger Action: Report this exceedance in its cover sheet for the May self-monitoring report (due June 30th), and continue to report mercury data on the cover sheet until successful completion.

Discharger Action: Continue accelerated monitoring until not less than a total of 6 new samples have been collected.

Discharger X's accelerated samples reveal the following results:

Sample Date	Sample Result, μg/L	12-month mass, kg/yr
(May 4)	**(0.046)**	0.80
June 1	0.031	0.79
June 5	0.059	0.82
June 14	0.023	0.81
June 18	0.055	0.82
June 30	0.040	0.82
July 5	0.029	0.81

Discharger Action: Initiate, no later than July 5, development of Action Plan for Mercury Reduction..

Note: Despite the fact that the one sample for July are below all three triggers, the average of the samples in June is above the monthly average trigger.

Discharger Action: Discharger may shift to monthly monitoring after collection of the 6th accelerated sample.

Additional monitoring results:

Sample Date	Sample Result, μg/L	12-month mass, kg/yr
August 11	**0.027**	0.80
September 14	0.042	0.78
October 5	0.042	0.075
October 7	ND (<0.0005)	
November 5	0.035	**0.81**
December 10	0.022	**0.93**
January 5	0.018	**0.94**
February 14	0.028	0.85
March 25	0.010	0.81
April 7	0.023	0.75

Discharger Action: Submit and implement Action Plan for Mercury Reduction (due 130 days after May 30).

Note: Despite the July and August samples being below both concentration triggers, three consecutive months below **all** triggers are necessary before the Action Plan activities are no longer required. The May sample is still above the monthly trigger.

Note: In September, though that sample is above the monthly concentration trigger, accelerated monitoring is not required again because discharger X has already been triggered into Action Plan mode.

Note: In December, though the concentrations have been below concentration triggers for 3 consecutive months, discharger X must continue with the Action Plan because its 12-month running average mass discharge exceeds the mass trigger.

Discharger Action: Report on current mercury reduction efforts in its Annual Self-Monitoring Report due February 1st.

In April, three consecutive months show successful completion of this effort. Discharger X is no longer required to further implement its Action Plan, and may thus return to routine monitoring. Discharger X reports its mercury reduction efforts in its Annual Self-Monitoring Report due next February 1st.

APPENDIX F-2 -- CALCULATION OF CONCENTRATION BASED EFFLUENT LIMITS

Introduction

To calculate concentration based mercury limits that are consistent with the assumptions and requirements of the Mercury TMDL, the Regional Water Board analyzed mercury data from 2000 to 2003. We grouped data into three categories (municipal secondary treatment, municipal advanced secondary treatment involving filtration, and industrial treatment). The statistical analysis used data from 17 secondary treatment plants, 7 advanced secondary treatment plants, and 5 petroleum refineries.

The purpose of pooling mercury data to calculate limits based on category of treatment and/or process that are similar to reduce the likelihood of penalizing plants that have implemented effective control measures and are already performing well, and rewarding other plants that may not have implemented similar measures.

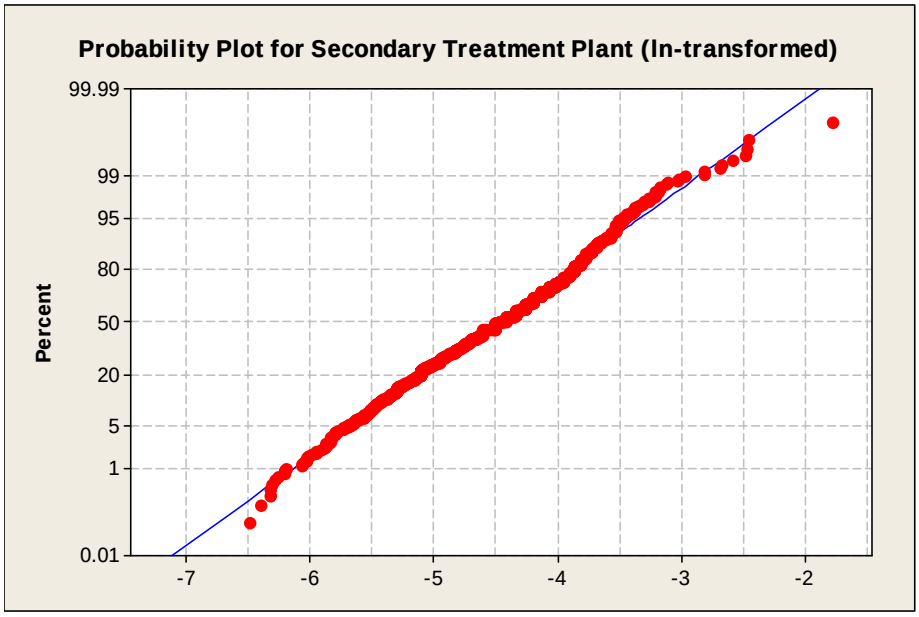
Data Analysis of Municipal Treatment Facilties

We analyzed mercury data from all POTWs that are using the Regional Water Board's electronic reporting system (ERS). Mercury data that did not appear to result from ultra-clean sampling because of high detection limits were removed (i.e., EBMUD data from January 2000 through May 2001, and San Francisco City and County Southeast from October 21, 2003). Additionally, when detection limits were very low (practical quantification limit (PQL) equaled 0.5 ng/L and method detection limit equaled 0.24 ng/L, we censored data at the PQL). Finally, we did not use data from the South Bayside System Authority because this treatment plant does not always filter treated wastewater, which makes it difficult to categorize this system as secondary or advanced secondary treatment.

Secondary Treatment Plants

Our analysis of secondary treatment plants indicates that mercury data fit a log-normal distribution since the data closely follow the line of normality, as shown in Figure 1 below:

Figure 1: Probability Plot of Mercury Data for Secondary Treatment Plants



Because natural log transformed mercury data for secondary treatment plants fits a normal distribution, it is possible to calculate performance-based limits based on select percentiles. For secondary treatment plants (sample size of 984), the mean and standard deviation in the natural log phase are -4.5212 and 0.7188, respectively. We calculated daily, weekly, and monthly mercury limits based on the 99.87th percentile (3 standard deviations above the mean), the 99.57th percentile (2.625 standard deviations above the mean), and the 99.38th percentile (2.5 standard deviations above the mean).

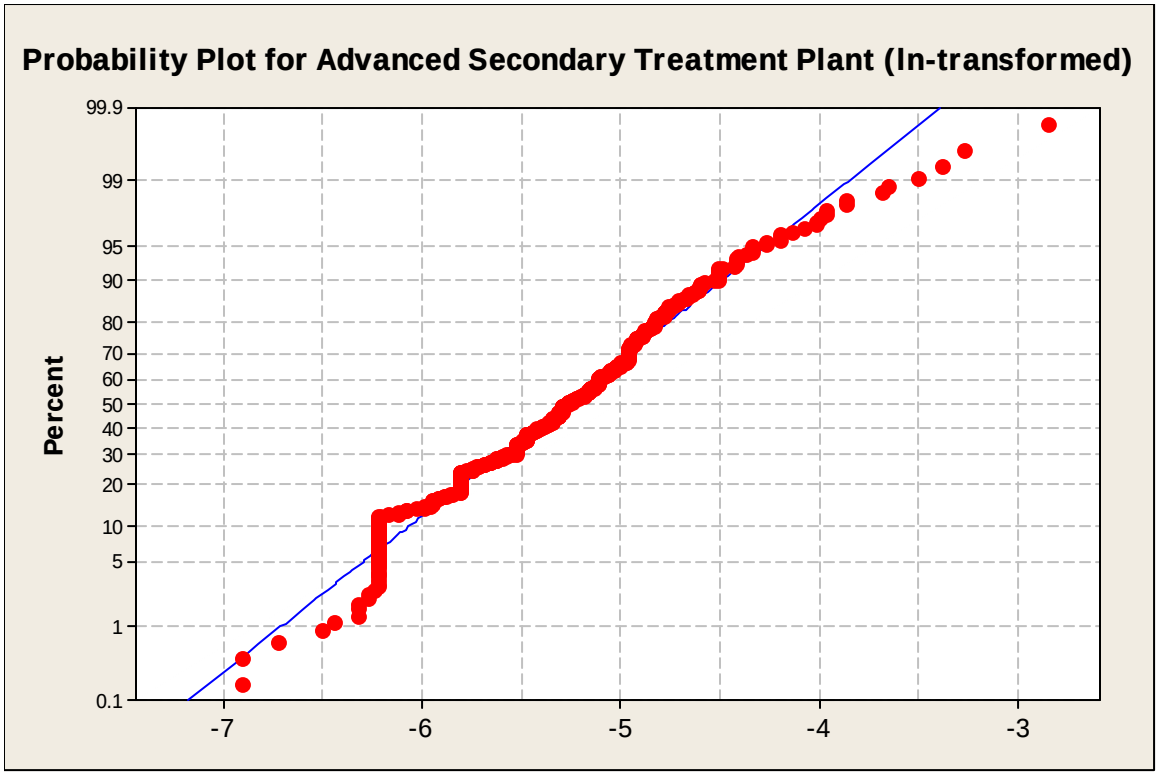
Table 1: Mercury Limits for Secondary Treatment Plants

Percentile	Averaging Period	Mercury Limit (ng/L)
99.87th	Daily	94
99.57th	Weekly	72
99.38th	Monthly	66

Advanced Secondary Treatment Plants

Our analysis of advanced secondary treatment plants indicates those data also fit a log-normal distribution since the data follow the line of normality, as shown in Figure 2 below.

Figure 2: Probability Plot of Mercury Data for Advanced Secondary Treatment Plants



Because natural log transformed mercury data for advanced secondary treatment plants fits a normal distribution, it is again possible to calculate performance-based limits based on select percentiles. For advanced secondary treatment plants (sample size of 434), the mean and standard deviation in the natural log phase are -5.3457 and 0.6664, respectively. We

calculated daily, weekly, and monthly mercury limits based on the 99.87th percentile, the 99.57th percentile, and the 99.38th percentile.

Table 2: Mercury Limits for Advanced Secondary Treatment Plants

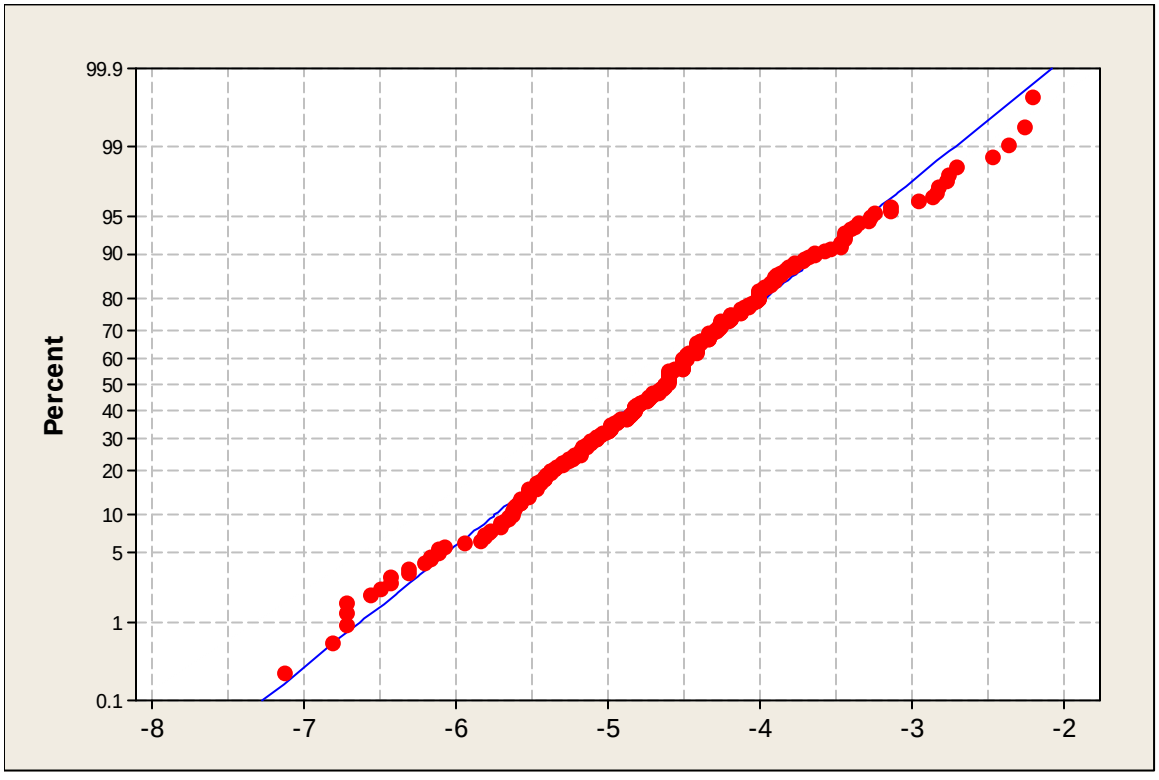
Percentile	Averaging Period	Mercury Limit (ng/L)
99.87th	Daily	35
99.57th	Weekly	27
99.38th	Monthly	25

Data Analysis of Industrial Treatment

We analyzed mercury data from five refineries that report data to the Water Board's electronic reporting system (ERS). As explained in the data tables, Regional Water Board staff determined that a number of data points from three of the refineries (i.e., Chevron, ConocoPhillips, and Shell) were not indicative of treatment plant performance, and therefore, should be removed. Additionally, when detection limits were very low (practical quantification limit (PQL) of 0.5 ng/L, we censored data at the PQL).

Our analysis of five Bay Area refineries indicates that mercury data fit a log-normal distribution since the data closely follow the line of normality, as shown in Figure 1 below:

Figure 3: Probability Plot of Mercury Data for Bay Area Refineries



Because natural log transformed mercury data fits a normal distribution, it is possible to calculate performance-based limits based on select percentiles. For refineries (sample size of 296), the mean and standard deviation in the natural log phase are -4.7000 and 0.8654,

respectively. We calculated daily, weekly, and monthly mercury limits based on the 99.87th percentile (3 standard deviations above the mean), the 99.57th percentile (2.625 standard deviations above the mean), and the 99.38th percentile (2.5 standard deviations above the mean).

Table 3: Mercury Limits for Industries Using Petroleum Refinery Performance

Percentile	Averaging Period	Mercury Limit (ng/L)
99.87th	Daily	122
99.57th	Weekly	88
99.38th	Monthly	79

APPENDIX F-3 -- SUMMARY OF DISCHARGE CHARACTERISTICS IN CONSIDERATION OF MONITORING FREQUENCIES

Discharger	Coefficient of Variation	Baseline Hg Sampling Frequency	2000-2003 Long Term Average (LTA), ug/l	Proposed AMEL (ug/l)	Ratio of LTA to AMEL	USEPA Performance-Based Frequency(1)
Mt. View Sanitary District	0.78	1/month	0.0092	0.025	0.37	1/Q
Petaluma Permit	0.50	1/month	0.0066	0.025	0.26	1/Q
Palo Alto	0.57	1/month	0.0058	0.025	0.23	2/yr
Sunnyvale	0.49	1/month	0.0036	0.025	0.14	2/yr
Fairfield-Suisun Sewer District	0.64	2/month	0.0050	0.025	0.20	1/Q
San Jose & Santa Clara	0.28	1/month	0.0024	0.025	0.10	2/yr
S.F.City & County Southeast, North Point & Bayside	1.22	4/month	0.0136	0.066	0.21	6/yr
Millbrae	0.48	1/month	0.0128	0.066	0.19	2/yr
EBMUD	0.62	1/month	0.0119	0.066	0.18	2/yr
EBDA	0.46	1/month	0.0201	0.066	0.30	1/Q
Delta Diablo Sanitation District	0.33	2/month	0.0131	0.066	0.20	1/Q
Central Marin Sanitation Agency	0.49	1/month	0.0067	0.066	0.10	2/yr
Central Contra Costa	0.27	1/month	0.0265	0.066	0.40	1/Q
Burlingame	0.49	1/month	0.0068	0.066	0.10	2/yr
Benicia, City of	0.71	1/month	0.0129	0.066	0.20	2/yr
Pinole-Hercules	0.95	1/month	0.0092	0.066	0.14	2/yr
San Mateo City, Winter	0.97	1/month	0.0128	0.066	0.19	2/yr
Sausalito-Marin Sanitary District Permit	0.27	1/month	0.0241	0.066	0.36	1/Q
Sewerage Agency of Southern Marin Permit	0.26	1/month	0.0196	0.066	0.30	1/Q
Sonoma Valley Permit	1.41	4/month	0.0062	0.066	0.09	6/yr
South San Francisco & San Bruno	0.49	1/month	0.0138	0.066	0.21	2/yr
Vallejo San & Flood Control District	0.29	1/month	0.0178	0.066	0.27	1/Q
S.F. Airport, Water Quality Control Plant	0.84	1/month	0.0196	0.066	0.30	1/Q
Chevron Richmond Refinery	2.38	1/month	0.0313	0.079	0.40	1/Q
ConocoPhillips (at Rodeo)	2.41	1/month	0.0299	0.079	0.38	1/Q
Martinez Refining Company	2.09	1/month	0.0302	0.079	0.38	1/Q
Tesoro Golden Eagle Refinery	0.92	1/month	0.0063	0.079	0.08	2/yr
Valero Benicia Refinery	0.52	1/month	0.0133	0.079	0.17	2/yr

(1) Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies, USEPA, April 19, 1996.

ATTACHMENT 27

ORDER No. R2-2013-0029
NPDES No. CA0037664

The following discharger is subject to waste discharge requirements (WDRs) set forth in this Order.

Table 1. Discharger Information

Discharger	City and County of San Francisco
Facility Name	Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System
Facility Address	San Francisco Public Utilities Commission / Wastewater Enterprise 750 Phelps Street San Francisco, CA 94124
CIWQS Place Number	256499

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
Treatment Plant Discharge Points				
001 (Pier 80 Outfall)	Secondary-treated effluent (dry weather); Primary-treated and secondary-treated effluent (wet weathter)	37.749444	-122.372778	Lower San Francisco Bay
002 (Quint Street Outfall)	Secondary-treated effluent (wet weathter)	37.747222	-122.386944	Islais Creek
003 and 004 (Pier 33 Outfall)	Primary-treated effluent (wet weathter)	37.806944	-122.403056	Central San Francisco Bay
005 and 006 (Pier 35 Outfall)	Primary-treated effluent (wet weathter)	37.810000	-122.405556	Central San Francisco Bay
Combined Sewer Discharge Points				
009 (Baker Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.808056	-122.446667	Marina Beach North Shore Drainage Basin
010 (Pierce Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.806944	-122.440000	Marina Beach North Shore Drainage Basin
011 (Laguna Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.811667	-122.43189	Yacht Harbor #2 North Shore Drainage Basin

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
013 (Beach Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.808333	-122.406667	Pier 39 North Shore Drainage Basin
015 (Sansome Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.806667	-122.403056	Pier 31 North Shore Drainage Basin
017 (Jackson Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.798333	-122.39472	Pier 3 North Shore Drainage Basin
018 (Howard Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.793056	-122.390000	Pier 14 Central Drainage Basin
019 (Brannan Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.785278	-122.373333	Pier 32 Central Drainage Basin
022 (Third Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.777222	-122.389444	Mission Creek Central Drainage Basin
023 (Fourth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.775556	-122.391389	Mission Creek Central Drainage Basin
024 (Fifth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.773889	-122.393889	Mission Creek Central Drainage Basin
025 (Sixth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.771944	-122.396111	Mission Creek Central Drainage Basin
026 (Division Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.770278	-122.397500	Mission Creek Central Drainage Basin
027 (Sixth Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.771389	-122.395000	Mission Creek Central Drainage Basin
028 (Fourth Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.775000	-122.391111	Mission Creek Central Drainage Basin
029 (Mariposa Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37764722	-122.385278	Central Basin Central Drainage Basin
030 (20th Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.761111	-122.380000	Central Basin Central Drainage Basin
030A (22nd Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.757778	-122.380278	Central Basin Central Drainage Basin
031 (Third Street North	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.386111	Islais Creek Central Drainage Basin

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
031A (Islais Creek North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.387500	Islais Creek Central Drainage Basin
032 (Marin Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.748611	-122.390833	Islais Creek Central Drainage Basin
033 (Selby Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.390833	Islais Creek Central Drainage Basin
035 Third Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747222	-122.386111	Islais Creek Central Drainage Basin
037 (Evans Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.735833	-122.373889	India Basin Southeast Drainage Basin
038 (Hudson Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.733333	-122.373839	India Basin Southeast Drainage Basin
040 (Griffith Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.723056	-122.382222	Yosemite Creek Southeast Drainage Basin
041 (Yosemite Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.723889	-122.385556	Yosemite Creek Southeast Drainage Basin
042 (Fitch Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.722222	-122.381944	South Basin Southeast Drainage Basin
043 (Sunnydale Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747222	-122.386944	Candlestick Cove Southeast Drainage Basin

Table 3. Administrative Information

This Order was adopted on:	August 14, 2013
This Order shall become effective on:	October 1, 2013
This Order shall expire on:	September 30, 2018
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with California Code of Regulations, title 23, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	March 30, 2018
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region, have classified this discharge as follows:	Major

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above.

_____

Bruce H. Wolfe**,** Executive Officer

Contents

Tables

Attachments

I. FACILITY INFORMATION

Information describing the Southeast Water Pollution Control Plant (Southeast Plant), North Point Wet Weather Facility (North Point Facility), Bayside Wet Weather Facilities, and Wastewater Collection System (collectively, the Facility) is summarized in Table 1 and in Fact Sheet (Attachment F) sections I and II.

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), finds:

A. Legal Authorities. This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA, and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from the Facility to surface waters.

B. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information the Discharger submitted as part of its application, information obtained through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F) contains background information and rationale for the requirements in this Order and is hereby incorporated into and constitutes findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. No provisions and requirements in this Order are included to implement State law only.

D. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe these WDRs and provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

E. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing.

THEREFORE, IT IS HEREBY ORDERED that Order No. R2-2008-0007 (previous order) is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions of Water Code division 7 (commencing with § 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Regional Water Board from taking enforcement action for past violations of the previous order.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.

B. Discharge at Discharge Point No. 001 is prohibited when treated wastewater does not receive a dilution of at least 231:1, as modeled. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with or can achieve better mixing than that described in Fact Sheet section IV.C.4.a. The Discharger shall address measures taken to ensure this in its application for permit reissuance.

C. The bypass of untreated or partially-treated wastewater to waters of the United States is prohibited, except during wet weather (as defined in Attachment A) and as provided for in the conditions stated in Attachment D section I.G.

D. Except during wet weather, discharges from Discharge Point Nos. 002 through 043 are prohibited.

E. Average dry weather effluent flow in excess of 85.4 MGD is prohibited at Discharge Point No. 001. Average dry weather effluent flow shall be determined from three consecutive dry weather months each year, with compliance measured at Monitoring Location EFF-001A as described in the Monitoring and Reporting Program (MRP).

F. Any sanitary or combined sewer discharge of untreated or partially-treated wastewater to waters of the United States not expressely authorized by this Order is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations—Dry Weather

1. During dry weather, the Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP.

Table 4. Effluent Limitations—Dry Weather

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	30	45	---	---	---
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---
Oil and Grease	mg/L	10	---	20	---	---
pH [1]	s.u.	---	---	---	6.0	9.0
Total Residual Chlorine	mg/L	---	---	---	---	0.0 [2]
Copper, Total Recoverable	µg/L	53	---	76	---	---
Cyanide, Total	µg/L	20	---	43	---	---
Dioxin-TEQ	µg/L	1.4×10^{-8}	---	2.8×10^{-8}	---	---
1,2-Diphenylhydrazine	µg/L	5.4	---	11	---	---

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Ammonia, as N	mg/L	190	---	290	---	---

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
s.u. = standard units
% = percent

Footnotes:

[1] If the Discharger monitors pH continuously, pursuant to 40 C.F.R. section 401.17 the Discharger shall be in compliance with this pH limitation provided that both of the following conditions are satisfied: (i) the total time during which the pH is outside the required range shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) no individual excursion from the required pH range shall exceed 60 minutes.

[2] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination using all values measured during that day. However, if monitoring continuously, for the purpose of mandatory minimum penalties required by Water Code section 13385(i), compliance shall be based only on discrete readings from the continuous monitoring every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all continuous monitoring data for discretionary enforcement.

The Discharger may elect to use a continuous on-line monitoring system for measuring or determining that residual dechlorinating agent is present. This monitoring system may be used to prove that anomalous residual chlorine exceedances measured by on-line chlorine analyzers are false positives and are not violations of this total residual chlorine limit because it is chemically improbable to have chlorine present in the presence of sodium bisulfite.

2. **Percent Removal.** During dry weather, the average monthly percent removal of biochemical oxygen demand (BOD_5) and total suspended solids (TSS) at Discharge Point No. 001 shall not be less than 85 percent (i.e., in each calendar month, the arithmetic mean of BOD_5 and TSS, by concentration, for effluent samples collected at Monitoring Location EFF-001A as described in the MRP shall not exceed 15 percent of the arithmetic mean of the BOD_5 and TSS, by concentration, for influent samples collected at Monitoring Location INF-001 as described in the MRP at approximately the same times during the same period).

3. **Bacteria.** Dry weather discharges at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP, shall meet the following limitations:

   a. **Enterococcus.** The geometric mean enterococcus bacteria concentration of all samples in a calendar month shall not exceed 35 most probable number per 100 milliliters (MPN/100 mL).

   b. **Fecal Coliform.** The median fecal coliform density of all samples in any calendar month shall not exceed 500 MPN/100 mL, and no more than 10 percent of the samples in any calendar month shall contain a fecal coliform density equal to or greater than 1,100 MPN/100 mL.

4. **Whole Effluent Acute Toxicity.** During dry weather, discharges at Discharge Point No. 001 shall comply with the following limitations, with compliance measured at Monitoring Location EFF-001A as described in the MRP:

a. An 11-sample median value of not less than 90 percent survival; and

b. An 11-sample 90th percentile value of not less than 70 percent survival.

These acute toxicity limitations are defined as follows:

- **11-sample median.** A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

- **11-sample 90th percentile.** A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

Bioassays shall be performed using the most up-to-date U.S. EPA protocols and species as specified in the MRP. If these protocols prove unworkable, the Executive Officer and the Environmental Laboratory Accreditation Program may grant exceptions in writing upon the Discharger's request with justification.

If the Discharger can demonstrate that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge complies with the ammonia effluent limits in Section IV.A.1 of this Order, then such toxicity does not constitute a violation of this effluent limitation.

5. **Whole Effluent Chronic Toxicity.** During dry weather, discharges at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP, shall not contain chronic toxicity at a level that would cause or contribute to toxicity in the receiving water. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, or any other relevant measure of the health of an organism population or community. Compliance with this limit shall be determined by analysis of indicator organisms and toxicity tests as described in the MRP.

B. Effluent Limitations—Wet Weather

During wet weather, the Discharger shall comply with the following effluent limitations at Discharge Point Nos. 001 through 006, with compliance measured at Monitoring Locations EFF-001B, EFF-002, and EFF-003 as described in the MRP. Provision VI.C.5 of this Order imposes additional technology-based and water quality-based wet weather requirements.

Table 5. Effluent Limitations—Wet Weather

		Effluent Limitations	
Parameter	**Units**	**Monthly Geometric Mean**	**Instantaneous Maximum**
Total Residual Chlorine	mg/L	---	0.0 [1]
Enterococcus	MPN/100 mL	35 [2]	---

Unit Abbreviation:

mg/L = milligrams per liter

Footnote:

[1] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination using all values measured during that day. However, if monitoring continuously, for the purpose of mandatory minimum penalties required by Water Code section 13385(i),

compliance shall be based only on discrete readings from the continuous monitoring every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all continuous monitoring data for discretionary enforcement.

The Discharger may elect to use a continuous on-line monitoring system for measuring or determining that residual dechlorinating agent is present. This monitoring system may be used to prove that anomalous residual chlorine exceedances measured by on-line chlorine analyzers are false positives and are not violations of this total residual chlorine limit because it is chemically improbable to have chlorine present in the presence of sodium bisulfite.

[2] Data from both wet and dry weather shall be included when calculating the geometric mean for compliance with this monthly wet weather limitation. For days with discharge but no sampling, the enterococcus densities shall be assumed to be the same as the densities of the most recent discharge samples. For days with no discharge, enterococcus densities shall be assumed to be 1 MPN/100 mL for calculational purposes.

V. RECEIVING WATER LIMITATIONS

A. The discharge shall not cause the following conditions to exist in receiving waters at any place outside the near-field mixing zone (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy):

1. Floating, suspended, or deposited macroscopic particulate matter or foams;

2. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

3. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

4. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or

5. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

B. The discharge shall not cause the following limits to be exceeded in receiving waters at any place within one foot of the water surface outside the near-field mixing zone (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy):

1. Dissolved Oxygen — 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

2. Dissolved Sulfide — Natural background levels

3. pH — The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

4. Nutrients — Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

C. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board or State Water Board as required by the CWA and regulations adopted thereunder (including the *Combined Sewer Overflow (CSO) Control Policy*) outside near-field mixing zones (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy). If more stringent water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board may revise or modify this Order in accordance with the more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all "Standard Provisions" in Attachment D.

2. The Discharger shall comply with all applicable provisions of the "Regional Standard Provisions, and Monitoring and Reporting Requirements for NPDES Wastewater Discharge Permits" (Attachment G). Attachment G provisions I.J (Storm Water) and III.A.3.c (Storm Water Monitoring) do not apply.

B. Monitoring and Reporting

The Discharger shall comply with the MRP (Attachment E), and future revisions thereto, and applicable sampling and reporting requirements in Attachments D and G.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

b. If new or revised water quality objectives or total maximum daily loads (TMDLs) come into effect for San Francisco Bay and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of the effluent limitations in this Order is not intended to restrict in any way future modifications based on legally-adopted water quality objectives or TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

e. If an administrative or judicial decision on a separate NPDES permit or waste discharge requirements addresses requirements similar to this discharge.

f. Or as otherwise authorized by law.

The Discharger may request a permit modification based on any of the circumstances above. With any such request, the Discharger shall include antidegradation and anti-backsliding analyses.

With the consent of the Discharger, the Executive Officer may make minor modifications to this Order for the purposes set forth in 40 C.F.R. section 122.63.

2. Effluent Characterization Study and Report

a. Study Elements. The Discharger shall continue to characterize and evaluate the dry weather discharge from the following discharge point to verify that the "no" or "cannot determine" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples at the monitoring stations set forth below, as defined in the MRP, at no less than the frequency specified below:

Discharge Point	Monitoring Station	Minimum Frequency
001	EFF-001A	Once per calendar year

The samples shall be analyzed for the priority pollutants listed in Attachment G, Table C, except for those priority pollutants with effluent limitations where the MRP already requires more frequent monitoring. Compliance with this requirement shall be achieved in accordance with the specifications of Attachment G, sections III.A.1 and III.A.2.

The Discharger shall evaluate on an annual basis if concentrations of any of these priority pollutants significantly increase over past performance. The Discharger shall investigate the cause of any such increase. The investigation may include, but need not be limited to, an increase in monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. The Discharger shall establish remedial measures addressing any increase resulting in reasonable potential to cause or contribute to an exceedance of applicable water quality objectives during dry weather. This requirement may be satisfied through identification of the constituent as a "pollutant of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3.

b. Reporting Requirements

i. Routine Reporting. The Discharger shall, within 30 days of receipt of analytical results, report the following in the transmittal letter for the appropriate self-monitoring report:

(a) Indication that a sample for this characterization study was collected; and

(b) Identity of priority pollutants detected at or above applicable water quality criteria (see Fact Sheet Table F-9 for the criteria), and the detected concentrations of those pollutants.

ii. Annual Reporting. The Discharger shall summarize the annual data evaluation and source investigation in the annual self-monitoring report.

iii. Final Report. The Discharger shall submit a final report that presents all these data with the application for permit reissuance.

3. Pollutant Minimization Program

a. The Discharger shall continue to improve its existing Pollutant Minimization Program to promote minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.

b. The Discharger shall submit an annual report no later than February 28 each year. Each annual report shall include at least the following information:

i. Brief description of treatment plant. The description shall include the service area and treatment plant processes.

ii. Discussion of current pollutants of concern. Periodically, the Discharger shall analyze its circumstances to determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall include the reasons for choosing the pollutants.

iii. Identification of sources for pollutants of concern. This discussion shall include how the Discharger intends to estimate and identify pollutant sources. The Discharger shall include sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

iv. Identification of tasks to reduce the sources of pollutants of concern. This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks by itself or participate in group, regional, or national tasks that address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that address its pollutants of concern whenever it is efficient and appropriate to do so. An implementation timeline shall be included for each task.

v. Outreach to employees. The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the Facility. The Discharger may provide a forum for employees to provide input.

vi. Continuation of Public Outreach Program. The Discharger shall prepare a pollution prevention public outreach program for its service area. Outreach may

include participation in existing community events, such as county fairs; initiating new community events, such as displays and contests during Pollution Prevention Week; conducting school outreach programs; conducting plant tours; and providing public information in newspaper articles or advertisements, radio or television stories or spots, newsletters, utility bill inserts, or web sites. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies as appropriate.

vii. Discussion of criteria used to measure Pollutant Minimization Program and task effectiveness. The Discharger shall establish criteria to evaluate the effectiveness of its Pollutant Minimization Program. This discussion shall idenify the specific criteria used to measure the effectiveness of each task in Provisions VI.C.3.b.iii, iv, v, and vi.

viii. Documentation of efforts and progress. This discussion shall detail all of the Discharger's Pollutant Minimization Program activities during the reporting year.

ix. Evaluation of Pollutant Minimization Program and task effectiveness. This Discharger shall use the criteria established in Provision VI.C.3.b.vii to evaluate the program and task effectiveness.

x. Identification of specific tasks and timelines for future efforts. Based on the evaluation, the Discharger shall explain how it intends to continue or change its tasks to more effectively reduce the amount of pollutants flowing to the Facility, and subsequently in its effluent.

c. The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as detected but not quantified [DNQ] when the effluent limitation is less than the method detection limit [MDL], sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, or results of benthic or aquatic organism tissue sampling) and either:

i. A sample result is reported as DNQ and the effluent limitation is less than the Reporting Level (RL); or

ii. A sample result is reported as not detected (ND) and the effluent limitation is less than the MDL using definitions in Attachment A and reporting protocols described in the MRP.

d. If triggered by the reasons set forth in Provision VI.C.3.c, above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals:

i. Annual review and semi-annual monitoring of potential sources of the reportable priority pollutants, which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures when source monitoring is unlikely to produce useful analytical data;

ii. Quarterly monitoring for the reportable priority pollutants in the influent to the Facility. The Executive Officer may approve alternative measures when influent monitoring is unlikely to produce useful analytical data;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutants in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and

v. Inclusion of the following specific items within the annual report required by Provision VI.C.3.b above:

(a) All Pollutant Minimization Program monitoring results for the previous year;
(b) List of potential sources of the reportable priority pollutants;
(c) Summary of all actions undertaken pursuant to the control strategy; and
(d) Description of actions to be taken in the following year.

4. Special Provisions for Municipal Facilities

a. Pretreatment Program. The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations (40 C.F.R. part 403); pretreatment standards promulgated under CWA sections 307(b), 307(c), and 307(d); pretreatment requirements specified under 40 C.F.R. section 122.44(j); and the requirements in Attachment H, "Pretreatment Requirements." The Discharger's responsibilities include, but are not limited to, the following:

i. Enforcement of the National Pretreatment Standards of 40 C.F.R. sections 403.5 and 403.6;

ii. Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the National Pretreatment Program (40 C.F.R. part 403).

iii. Submission of reports to the State Water Board and the Regional Water Board as described in Attachment H.

iv. Evaluation of the need to revise local limits under 40 C.F.R. section 403.5(c)(1) and, within 180 days following the effective date of this Order, submission of a report describing the changes, with a plan and schedule for implementation. To ensure no significant increase in copper discharges, and thus compliance with antidegradation requirements, the Discharger shall not consider eliminating or relaxing local limits for copper.

b. Sludge and Biosolids Management

i. All sludge and biosolids shall be disposed of, managed, or used in a municipal solid waste landfill; through land application; as a Class A compost; through a waste-to-

energy facility or another recognized and approved technology; in a sludge-only landfill; or in a sewage sludge incinerator in accordance with 40 C.F.R. part 503.

ii. Sludge and biosolids treatment, storage, and disposal, or use, shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

iii. The sludge and biosolids treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect site boundaries from erosion and rising sea levels, and to prevent any conditions that would cause drainage from the materials in the storage site. Adequate protection is defined as protection from at least a 100-year storm and the highest possible tidal stage that may occur.

iv. Sludge or biosolids disposed in a municipal solid waste landfill shall meet the requirements of 40 C.F.R. part 258. In the annual self-monitoring report, the Discharger shall provide the amount of sludge or biosolids disposed and indicate the landfill to which it was sent.

v. This Order does not authorize permanent onsite sludge or biosolids storage or disposal. A Report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity.

c. Collection System Management. The Discharger shall properly operate and maintain its entire collection system (see Provision VI.C.5 and Attachment D, section I.D). The Discharger shall report any noncompliance (see Attachment D, sections V.E.1 and V.E.2) and mitigate any discharge from its collection system that violates this Order (see Attachment D, section I.C).

i. Separate Sanitary Sewer System. The *General Waste Discharge Requirements for Wastewater Collection Agencies* (General Collection System WDRs), State Water Board Order 2006-0003 DWQ as amended by State Water Board Order WQ 2008-0002-EXEC, has requirements for operation and maintenance of separate sanitary sewer collection systems and for reporting and mitigating sanitary sewer overflows from the separate sanitary sewer portion of the Discharger's collection system. While the Discharger must comply with both the General Collection System WDRs and this Order, the General Collection System WDRs more clearly and specifically stipulate requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows. Implementation of the General Collection System WDRs for proper operation and maintenance and mitigation of sanitary sewer overflows will satisfy the corresponding federal NPDES requirements specified in Attachment D (as supplemented by Attachment G). Following the notification and reporting requirements in the General Collection System WDRs will satisfy NPDES the corresponding reporting requirements specified in Attachment D (as supplemented by Attachment G) for sanitary sewer overflows from the separate sanitary sewer portion of the collection system.

ii. Combined Sewer System. For purposes of this Order, a combined sewer system "excursion" is a release or diversion of untreated or partially-treated wastewater from

the combined sewer system that exits the system temporarily and then re-enters it. Excursions are caused by blockages or flow conditions within the publicly-owned portion of the combined sewer system and can occur in public rights of way or on private property. Excursions do not include releases from privately-owned sewer laterals or authorized combined sewer discharges from Discharge Point Nos. 009 through 043.

(a) Excursion Database. By January 1, 2014, the Discharger shall develop and maintain a database containing information about each excursion that occurs within the Southeast Plant's service area. The Discharger may limit these data to excursions occurring within the City and County of San Francisco. The Discharger may, at its option, include information concerning releases from private sewer laterals. The database shall contain the following information for each excursion:

(1) Location, including latitude and longitude, street address (if available), zip code, cross street, and asset number;

(2) Destination (if known), including whether the excursion was fully captured and returned to the combined sewer system and whether any portion of it entered a drainage channel or surface water;

(3) Estimated volume, in gallons, including volume that reached a surface water or drainage channel and volume recovered (all spills to drainage channels or surface waters are subject to MRP section IX.B, which modifies Attachment G section V.E.2);

(4) Date and time excursion was reported to the San Francisco Public Utilities Commission;

(5) Operator arrival date and time;

(6) End date and time of excursion, if known;

(7) Source (e.g., manhole, catch basin, vent trap);

(8) Cause (e.g., mainline blockage, roots, broken pipe);

(9) Corrective actions taken, including steps taken or planned to reduce, eliminate, and prevent reoccurrence;

(10) Parameters for which samples were analyzed and results (if applicable);

(11) Whether the County Health Officer was notified and health warnings were posted (if known);

(12) Whether a beach was affected and, if so, which one (if applicable);

(13) California Emergency Management Agency (CalEMA) control number, and date and time CalEMA was called (if applicable);

(14) Date and time County Health Officer was notified (if applicable).

If the Discharger chooses to include information regarding releases from private sewer laterals, it should also record responsible party contact information, if known.

(b) Routine Reporting. The Discharger shall report any excursion greater than 1,000 gallons, regardless of whether it enters a drainage channel or surface water, to the Regional Water Board and the San Francisco Department of Public Health not later than two hours after becoming aware of the discharge. The Discharger shall make this report as soon as (1) it has knowledge of the excursion, (2) reporting is possible, and (3) a report can be provided without impeding cleanup or other emergency measures. The Discharger shall report excursions by calling the Regional Water Board's spill hotline (currently 510-622-2369) and following standard procedures developed by the San Francisco Public Utilities Commission and the San Francisco Department of Public Health. (Spill to drainage channels or surface waters are subject to MRP section IX.B, which modifies Attachment G section V.E.2.)

(c) Annual Report. The Discharger shall submit a report no later than August 15 each year that compiles and summarizes information from the excursion database for the preceding 12 months ending June 30. Within the report, the Discharger shall review collection system performance, evaluate excursion trends in terms of time and location, summarize actions taken within the preceding year to minimize excursions, and identify specific tasks for the coming year to further minimize excursions.

(d) Record Keeping. The Discharger shall maintain documentation supporting the database records for at least three years following each excursion. The Executive Officer may extend this period if necessary. Documentation shall include, but need not be limited to, work orders and other maintenance records associated with responses and investigations. The Discharger shall make all excursion records available for review upon Regional Water Board staff request.

If the Discharger collects water quality samples for analysis, it shall maintain the following information:

- Date, exact place, and time of sampling or measurement;
- Individual who performed sampling or measurement;
- Date of analysis;
- Individual who performed analysis;
- Analytical technique or method used; and
- Analysis results.

5. Combined Sewer Sytem Controls

The Discharger shall maximize flows to the Southeast Plant and pollutant removal during wet weather in accordance with the Nine Minimum Controls and the Discharger's Long-Term Control Plan.

a. Combined Sewer Operations and Maintenance Plan. The Discharger shall revise and update its *Combined Sewer Operations and Maintenance Plan* as necessary to ensure compliance with the Nine Minimum Controls and the Long-Term Control Plan requirements of the *Combined Sewer Overflow Control Policy*. The Discharger shall submit the updated plan by August 15, 2015, and following any subsequent revision.

b. Nine Minimum Controls. The Discharger shall continue implementing the following controls:

i. Conduct Proper Operations and Maintenance Programs. The Discharger shall implement its *Combined Sewer Operations and Maintenance Plan*, which shall include the elements described below. The Discharger shall operate and maintain the system according to the plan and in accordance with Provision VI.C.4.c.ii of this Order. The Discharger shall maintain records to document plan implementation.

(a) Designate Manager for Combined Sewer Discharges and Overflows. The Discharger shall designate a person to be responsible for the wastewater collection system and serve as the contact person regarding the operation of the combined sewer system. The Discharger shall notify the Regional Water Board within 90 days of the designation of a new contact person.

(b) Inspect and Maintain Combined Sewer System. The Discharger shall properly operate and maintain the collection system and the combined sewer discharge outfalls to reduce the magnitude, frequency, and duration of combined sewer discharges. The Discharger shall perform the following:

- Regularly clean sewers and catch basins, and repair or replace, as necessary, sewers and related equipment;
- Disconnect any illegal connections;
- Inspect and maintain discharge structures, regulators, pumping stations, and tide gates to ensure that they are in good working condition and adjusted to minimize combined sewer discharges, prevent combined sewer overflows, and prevent tidal inflow;
- Inspect each combined sewer discharge outfall at least once per year. The inspection shall include, but not be limited to, entering the regulator structure, if accessible; determining the extent of any structural defect or debris and grit buildup; and removing any debris that may constrict flow, cause blockage, or result in a dry weather combined sewer overflow. For outfalls that are inaccessible, the Discharger may perform a visual check of the discharge pipe to determine whether combined sewer overflows have occurred or could potentially occur during dry weather; and

- Record all inspection results in a maintenance log.

(c) Provide Trained Staff. The Discharger shall provide adequate staff to carry out the operation, maintenance, repair, and testing required to ensure compliance with the terms and conditions of this Order. The Discharger shall provide appropriate training for each staff member.

(d) Allocate Funds for Operation and Maintenance. The Discharger shall allocate adequate funds for operation and maintenance activities.

ii. Maximize Use of Collection System for Storage. The Discharger shall continue to maximize the use of the collection system (i.e., collection system piping, not only the storage/transports) for in-line storage to reduce the magnitude, frequency, and duration of combined sewer discharges.

iii. Review and Modify Pretreatment Program. The Discharger shall continue to implement controls to minimize the impact of non-domestic discharges to its collection system. At three-year intervals, the Discharger shall re-evaluate whether additional modifications to its pretreatment program are feasible or practical. The Discharger shall maintain records to document this evaluation and implementation of controls.

iv. Maximize Flow to Southeast Plant and North Point Facility. The Discharger shall operate the Southeast Plant at maximum treatable flow during wet weather. The Discharger shall ensure that the *Combined Sewer Operation and Maintenance Plan* is implemented to maximize the volume of wastewater treated at the Southeast Plant and the North Point Facility and discharged via deep water outfalls, consistent with the hydraulic capacities of the storage, transport, treatment, and disposal facilities. The Discharger shall report rainfall with the self-monitoring reports the MRP requires.

v. Prohibit Dry Weather Combined Sewer Overflows. Dry weather combined sewer overflows from Discharge Point Nos. 002 through 043 are prohibited. The Discharger shall respond to dry weather combined sewer overflows in accordance with MRP section IX.B, which modifies Attachment G section V.E.2. During any dry weather combined sewer overflow, the Discharger shall inspect the overflow point each day until the overflow stops. The Discharger shall document in the inspection log each combined sewer overflow event, its duration, its cause, and the corrective measures taken.

vi. Control Solid and Floatable Materials in Combined Sewer Discharges. The Discharger shall continue to implement measures to control solid and floatable materials in combined sewer discharges, including the following:

(a) Ensuring that overflow structures are baffled or using other means to reduce the volume of floatable materials in combined sewer discharges, and

(b) Removing solid or floatable materials captured in the storage/transports prior to discharge.

vii. Develop and Implement Pollution Prevention Program. The Discharger shall continue to implement a Pollution Prevention Program focused on reducing the impact of combined sewer discharges and overflows on receiving waters. It shall develop and implement this program in accordance with Provision VI.C.3.

The Discharger shall also continue to implement a street sweeping program and clean catch basins at a frequency sufficient to prevent large accumulations of pollutants and debris.

viii. Notify Public of Combined Sewer Discharges. The Discharger shall continue to implement a public notification plan to inform citizens of when and where combined sewer discharges occur. The plan shall include the following:

(a) A mechanism to alert persons using receiving waters affected by combined sewer discharges for recreation; and

(b) A system to determine the nature and duration of conditions resulting from combined sewer discharges potentially harmful to receiving water users.

Warning signs shall be posted at beach locations where water contact recreation occurs whenever a combined sewer discharge occurs that could affect recreational users at that location. Warning signs shall be posted on the same day as the combined sewer discharge event unless the combined sewer discharge occurs after 4:00 p.m., in which case, signs shall be posted by 8:00 a.m. the next day. The Discharger shall maintain records documenting public notification.

ix. Monitor to Characterize Wet Weather Discharge Impacts and Efficacy of Controls. The Discharger shall continue monitoring wet weather discharges to characterize their impacts and the efficacy of wet weather discharge controls. The monitoring shall build upon the efforts and results the Discharger described in *Special Study: Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities* (June 29, 2012).

(a) Monitoring Requirements. Compliance with the following monitoring requirements shall be achieved in accordance with the specifications of Attachment D, section III, and Attachment G, sections III.A.1 and III.A.2. Samples shall be composites comprised of individual grab samples collected at equal intervals of no more than one hour for the duration of each discharge event, but not exceeding 24 hours. If an event does not last at least 24-hours, the Discharger shall sample for as long as possible and report the duration.

(1) Southeast Plant and North Point Facility Discharges. When Southeast Plant or North Point Facility discharges occur during wet weather, the Discharger shall collect effluent samples representing Discharge Point Nos. 001 through 006 at Monitoring Locations EFF-001B, EFF-002, and

EFF-003, as defined in the MRP. In addition to the monitoring required in MRP Table E-4, the Discharger shall monitor for the priority pollutants listed in Attachment G, Table C, at least once per year.

(2) Combined Sewer Discharges. The Discharger shall collect effluent samples representing Discharge Point Nos. 009 through 043 at Monitoring Locations CSD-010 through CSD-043, as defined in the MRP. The Discharger shall collect samples at a monitoring location whenever a combined sewer discharge event of at least one hour in duration occurs at that location (and may also collect samples representing shorter events). In addition to the monitoring required in MRP Table E-5, the Discharger shall monitor each sample for the following:

- total suspended solids
- settleable matter
- pH
- metals (arsenic, cadmium, copper, lead, nickel, selenium, silver, and zinc)
- cyanide
- ammonia (total)

The Discharger shall also monitor a combined sewer discharge at Monitoring Location CSD-41 for the remaining priority pollutants listed in Attachment G, Table C, at least once per year.

(3) Shoreline Monitoring. The Discharger shall collect shoreline receiving water grab samples at Monitoring Locations S-202.4, S-202.5, S-210, S-211, S-300.1, S-301.1, and S-301.2, as defined in the MRP. In addition to the monitoring required in MRP Table E-6, the Discharger shall monitor enterococcus and fecal coliform at a frequency sufficient to characterize ambient conditions (e.g., weekly).

(b) Reporting Requirements

(1) Routine Reporting. The Discharger shall, within 60 days of receipt of analytical results, indicate in the transmittal letter for the appropriate self-monitoring report that a sample for this study was collected.

(2) Final Report. The Discharger shall report its findings by September 30, 2017. The report shall include the following:

- All wet weather discharge monitoring data collected, including acute toxicity data (the Discharger shall include data that do not necessarily conform to the test procedures in 40 C.F.R. part 136 and explain these circumstances to provide context for data interpretation);

- All shoreline monitoring data collected and any discharge-related beach closures;

- Updated water contact recreational use surveys, focusing particularly on recreational use following combined sewer discharge events;

- Evaluation of combined sewer discharge control efficacy (e.g., using TSS as a proxy for pollutant removal efficiency); and

- Evaluation of combined sewer discharge impacts (e.g., comparing average and maximum discharge and receiving water monitoring data with water quality objectives, translated as appropriate using available metals translators and water effects ratios).

c. Long-Term Control Plan. The Discharger shall comply with the following provisions, consistent with implementation of its Long-Term Control Plan.

i. The Discharger shall optimize sytem operations to minimize combined sewer discharges and maximize pollutant removal during wet weather.

ii. The Discharger shall capture for treatment, or storage and subsequent treatment, 100 percent of the combined sewage flow collected in the combined sewage system during precipitation events. Captured combined sewage shall be directed to either the Southeast Plant, the North Point Facility, or the storage/transports. All combined sewage captured shall receive a minimum of the following treatment:

(a) Secondary treatment,
(b) Primary treatment, or
(c) Equivalent-to-primary treatment (in storage/transports).

iii. The Discharger shall operate the wet weather facilities as set forth below. If the Discharger can demonstrate (e.g., through modeling conducted as part of its Sewer System Improvement Program) that changes to these operating parameters will result in additional storage or treatment, it may implement such changes. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration must be obtained prior to implementation.

(a) North Shore Drainage Basin. Activation and operation of the North Point Facility shall depend on rainfall, forecasts, and storage conditions in the North Shore Drainage Basin and the Central Drainage Basin.

- The North Point Facility shall be activated when the level of combined sewage and stormwater in the North Shore Storage/Transport Box is at 200 inches.

- The North Point Facility shall be activated to treat 135 to 145 MGD of combined in-flow within 60 minutes of any combined sewer discharge through Discharge Point Nos. 013 to 017.

- The North Point Facility shall remain operational as long as necessary to minimize the likelihood of storage/transport combined sewer discharges in the Central or Southeast Drainage Basins.

(b) Central Drainage Basin. Activation and operation of the Channel Pump Station shall depend on rainfall, forecasts, and storage conditions in the Central Drainage Basin and the Southeast Drainage Basin.

- The Channel Pump Station shall pump 80 MGD to the Southeast Plant or Southeast Plant influent shall be at 250 MGD (from the Channel and Flynn Pump Stations and the Southeast Plant Lift Station) before there is any storage/transport combined sewer discharge to Mission Creek (Discharge Point Nos. 022 to 027).

- Flow from the Channel Pump Station to the Southeast Plant may be reduced to prevent a combined sewer discharge from the Southeast Drainage Basin storage/transport structures if the flows between the Central Drainage Basin structures and the Southeast Drainage Basin structures (Griffith Pump Station and/or Flynn Pump Station) become unbalanced, e.g., Griffith and/or Flynn storage levels continue to rise while the Southeast Plant is at maximum flow.

- The Mariposa Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point No. 029.

- The 20th St. Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point 030 or 030A.

(c) Southeast Drainage Basin. Southeast Plant operation shall depend on rainfall, forecasts, and storage conditions in the Central Drainage Basin and the Southeast Drainage Basin. The Southeast Plant shall have an influent flow of 240 to 250 MGD prior to any combined sewer discharge into Islais Creek from Discharge Point Nos. 031 through 035.

- The Griffith Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point Nos. 040 through 042. Flows from the Griffith Pump Station to the Southeast Plant may be reduced to maximize storage in the Southeast Drainage Basin if flows between the Central Drainage Basin and the Southeast Drainage Basin become unbalanced (e.g., if unused storage capacity exists in the Southeast Drainage Basin while the Southeast Plant is at maximum flow).

- The Sunnydale Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point No. 043. Flows from the Sunnydale Pump Station to the Griffith Pump Station may be reduced to maximize storage in the Southeast Drainage Basin if flows between the Central Drainage Basin and the Southeast Drainage Basin become unbalanced (e.g., if unused storage capacity exists in the Southeast Drainage Basin while the Southeast Plant is at maximum flow).

iv. The Discharger shall comply with the following after rains subside:

(a) Treatment at the Southeast Plant and North Point Facility shall continue until North Shore, Central, and Southeast Drainage Basin storage/transports are essentially empty of stormwater flows.

(b) If the National Weather Service predicts a 30 percent or greater chance of rain within the next 24 hours, the following provisions shall apply:

- Pumping shall occur until the wastewater level in the Channel Pump Station Box is between 100 to 150 inches,
- Pumping shall occur until the wastewater level in the North Shore Box is at 100 inches, and
- Pumping shall occur until the Islais Creek storage is essentially empty.

(c) If the National Weather Service predicts a less than 30 percent chance of rain within the next 24 hours, the following provisions shall apply:

- Pumping shall occur until the wastewater level in the Channel Pump Station Box is below 150 inches,
- Pumping shall occur until the wastewater level in the North Shore Box is below 150 inches, and
- Pumping shall occur until the Islais Creek storage is essentially empty.

v. By March 30, 2018, the Discharger shall synthesize and update its Long-Term Control Plan into one document that reflects current circumstances. The synthesis and update shall include the following elements.

(a) The Long-Term Control Plan shall continue to reflect the historical long-term average annual design goals for combined sewer discharges:

- Four combined sewer discharge events along the North Shore (Discharge Point Nos. 009 through 017);
- Ten combined sewer discharge events within the Central Basin (Discharge Point Nos. 018 through 036); and
- One combined sewer discharge event along the Southeast Sector (Discharge Point Nos. 037 through 043).

(b) The Discharger shall set forth operational requirements similar to those listed in Provisions VI.C.5.c.iii and VI.C.5.c.iv, above, to optimize system operations so as to maximize pollutant removal during wet weather and minimize combined sewer discharges.

(c) The Discharger shall set forth additional measures, to the extent technically and economically feasible, to maximize pollutant removal and minimize combined sewer discharges (e.g., implementing and promoting green infrastructure and low impact development that enhances stormwater detention and percolation).

(d) The Discharger shall develop and propose a metric to evaluate the performance of its wet weather disinfection systems for Discharge Point Nos. 001 through 006.

(e) The Discharger shall propose a plan for post-construction compliance monitoring of all wet weather discharges consistent with the *Combined Sewer Overflow Control Policy*.

vi. The Discharger shall submit a report implementing *Combined Sewer Overflow Control Policy* section II.C.3, "Consideration of Sensitive Areas." At a minimum, the Discharger shall explore how it could eliminate or relocate combined sewer discharges that discharge to sensitive areas. The Discharger shall base its assessment on any new or improved techniques (including but not limited to green infrastructure and low impact development) that can reduce, eliminate, or relocate combined sewer discharges from sensitive areas. The Discharger shall submit the report with its application for permit reissuance.

d. If the Executive Officer determines that the Discharger has caused a violation of any water quality standard for receiving waters, the Discharger shall evaluate its Long-Term Control Plan and its Combined Sewer Operations and Maintenance Plan, and submit a report identifying additional measures, considering its financial capabilities, to address the violation. The report shall include information on the technical and economic feasibility of the additional measures. The Discharger shall submit this report within 180 days after the Executive Officer provides notification of the violation, and the Discharger shall begin implementing the additional measures described in the report, as may be modified by the Executive Officer, within 60 days after report submittal.

6. Other Special Provisions

a. Copper Action Plan. The Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule.

Table 6. Copper Action Plan

Task	Compliance Date
1. Review Potential Copper Sources The Discharger shall submit an inventory of potential copper sources to the treatment plant.	*Completed June 2009*
2. Implement Copper Control Program The Discharger shall submit a plan for and begin implementation of a program to reduce copper sources identified in Task 1. The plan shall consists, at a minimum, of the following elements: a. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion); b. If corrosion is determined to be a significant copper source, work cooperatively with local water purveyors to reduce and control water	*Completed February 2011*

Task	Compliance Date
corrosivity, as appropriate, and ensure that local plumbing contractors implement best management practices to reduce corrosion in pipes; and c. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.	
3. Implement Additional Measures If the Regional Water Board notifies the Discharger that the three-year rolling mean copper concentration in Central or Lower San Francisco Bay exceeds 2.2 µg/L, then within 90 days of the notification, the Discharger shall evaluate the effluent copper concentration trend and, if it is increasing, develop and begin implementation of additional measures to control copper discharges. The Discharger shall report on the progress and effectiveness of actions taken, and provide a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 following 90 days after notification
4. Undertake Studies to Reduce Copper Pollutant Impact Uncertainties. The Discharger shall submit an updated study plan and schedule to conduct or cause to be conducted technical studies to investigate possible copper sediment toxicity and to investigate sub-lethal effects on salmonids. Specifically, the Discharger shall include the manner in which the above will be accomplished and describe the studies to be performed with an implementation schedule. To satisfy this requirement, the Discharger may collaborate and conduct these studies as a group.	*Completed January 2011*
5. Report Status of Copper Control Program. The Discharger shall submit an annual report documenting copper control program implementation and addressing the effectiveness of the actions taken, including any additional copper controls required by Task 3 above, and provide a schedule for actions to be taken in the next 12 months. Additionally, the Discharger shall report the findings and results of the studies completed, planned, or in progress under Task 4. Regarding Task 4 studies, dischargers may collaborate and provide this information in a single report to satisfy this requirement for an entire group.	With annual pollution prevention report due February 28 each year

b. Cyanide Action Plan. The Discharger shall implement monitoring and surveillance, pretreatment, source control and pollution prevention for cyanide in accordance with the following tasks and time schedule.

Table 7. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Sources The Discharger shall submit an inventory of potential cyanide sources to the treatment plant. If no cyanide sources are identified, Tasks 2 and 3 are not required, unless the Discharger receives a request to discharge detectable levels of cyanide to the sewer. If so, the Discharger shall notify the Executive Officer and implement Tasks 2 and 3.	*Completed June 2008*
2. Implement Cyanide Control Program The Discharger shall submit a plan and begin implementation of a program to minimize cyanide discharges to its treatment plant consisting, at a minimum, of the following elements: a. Inspect each potential source to assess the need to include that source in the control program. b. Inspect contributing sources included in the control program annually.	*Completed February 2011*

Task	Compliance Date
Inspection elements may be based on U.S. EPA guidance, such as Industrial User Inspection and Sampling Manual for POTWs (EPA 831-B-94-01). c. Develop and distribute educational materials to sources and potential sources regarding the need to prevent cyanide discharges. d. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. For purposes of this Order, a "significant cyanide discharge" is occurring if cyanide is found in the Southeast Plant's influent above 21 µg/L.	
3. Implement Additional Cyanide Control Measures If the Regional Water Board notifies the Discharger that ambient monitoring shows cyanide concentrations are 1.0 µg/L or higher in the main body of San Francisco Bay, then within 90 days of the notification, the Discharger shall commence actions to identify and abate cyanide sources responsible for the elevated ambient concentrations, and shall report on the progress and effectiveness of actions taken, and provide a schedule for actions to be taken in the next 12 months.	With next annual pollution prevention report due February 28 (at least 90 days following notification)
4. Report Status of Cyanide Control Program The Discharger shall submit an annual report documenting cyanide control program implementation and addressing the effectiveness of actions taken, including any additional cyanide controls required by Task 3, above, and provide a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 each year

c. Standard Operating Procedures for Resource Recovery. If the Discharger receives hauled-in anaerobically-digestible material for injection into an anaerobic digester, the Discharger shall notify the Regional Water Board and develop and implement Standard Operating Procedures for this activity. The Standard Operating Procedures shall be developed by February 1, 2014, or prior to initiation of hauling. The Standard Operating Procedures shall address material handling, including unloading, screening or other processing prior to anaerobic digestion, and transportation; spill prevention; spill response; avoidance of the introduction of materials that could cause interference, pass through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall provide training to its staff on the Standard Operating Procedures and shall maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition location and quantity of cumulative pre-digestion segregated solid waste hauled offsite.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Known to cause cancer in living organisms.

Coefficient of Variation
Measure of data variability calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Combined Sewer Discharge
Authorized discharge during a wet weather day from an approved combined sewer discharge point. Refer to Table 2 of the Order for a list of approved combined sewer discharge points.

Combined Sewer Discharge Event
Wet weather event that results in an authorized discharge from one or more approved combined sewer discharge points. A discrete combined sewer discharge event is separated by at least six hours from any other combined sewer discharge event. Refer to Table 2 of the Order for a list of approved combined sewer discharge points.

Combined Sewer System Excursion
Release or diversion of untreated or partially treated wastewater from the combined sewer system that exits the system temporarily and then re-enters it. Excursions do not include releases from privately owned sewer laterals, or authorized combined sewer discharges.

Daily Discharge
Either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit) for a constituent with limitations expressed in units of mass; or (2) the

unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period is considered the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
Sample result less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined by conducting a mixing zone study or modeling the discharge and receiving water.

Dry Weather
Any weather not defined as wet weather (determined on a day-by-day basis).

Effluent Concentration Allowance (ECA)
Value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the CV for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (*Technical Support Document For Water Quality-based Toxics Control*, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bay
Indentation along the coast that encloses an area of oceanic water within a distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
Concentration that results from the confirmed detection of the substance below the ML value by the analytical method.

Estuaries
Waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars are considered estuaries. Estuarine waters are considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater.

Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
Highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
Lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
Highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
Middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between n/2 and n/2+1).

Method Detection Limit (MDL)
Minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Limited volume of receiving water allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results less than the laboratory's MDL.

Persistent Pollutants
Substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program
Program of waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the Pollutant Minimization Program is to reduce all potential sources of a priority pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. Cost effectiveness may be considered when establishing the requirements of a Pollutant Minimization Program. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), is considered to fulfill Pollutant Minimization Program requirements.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board or Regional Water Board.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water
Any water designated as having a municipal or domestic supply (MUN) beneficial use.

Standard Deviation (σ)
Measure of variability calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)
Study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to

the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemicals responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

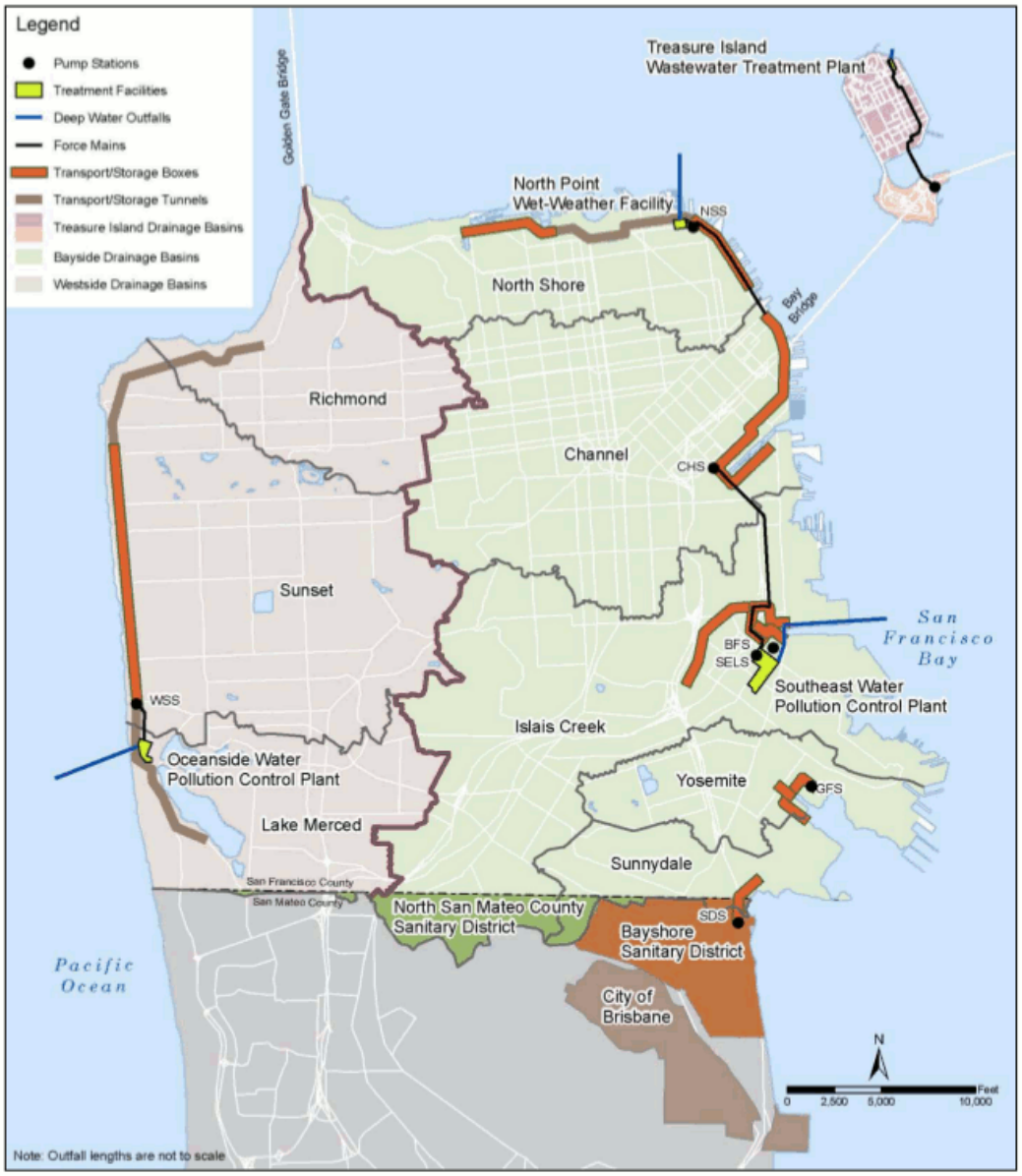
Wet Weather
Weather in which any one of the following conditions exists as a result of rain (determined on a day-by-day basis):

1. Instantaneous influent flow to the Southeast Plant (at Monitoring Location INF-001 as defined in the Monitoring and Reporting Program) exceeds 110 MGD and discharge occurs at Discharge Point No. 002;

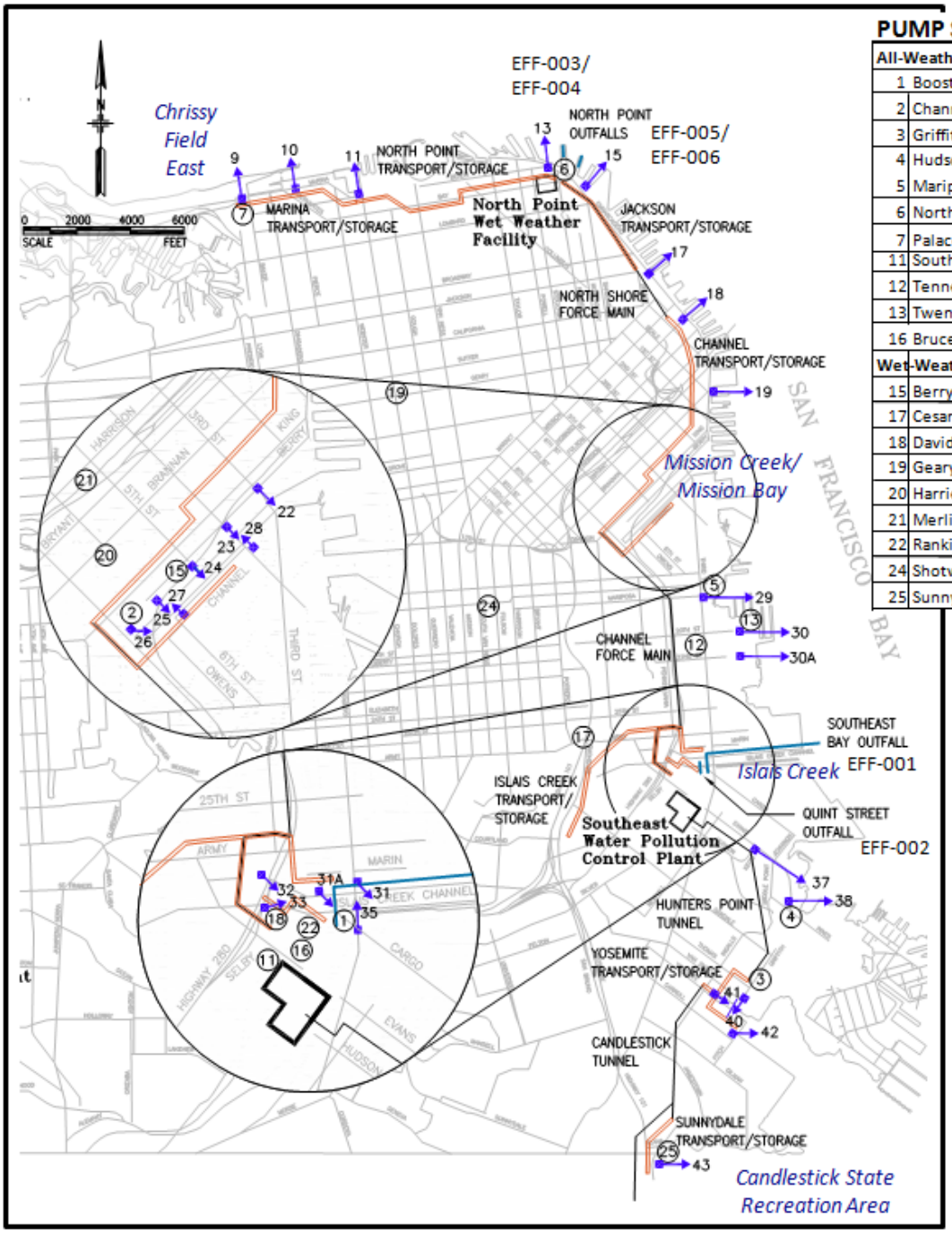
2. Average influent biochemical oxygen demand (BOD_5) or total suspended solids (TSS) concentration at the Southeast Plant is less than 100 mg/L; or

3. North Shore storage/transport wastewater elevation exceeds 100 inches.

ATTACHMENT B – FACILITY MAP



The Facility subject to this Order is shown in the light green (eastern) area of the map and includes the Southeast Water Pollution Control Plant, the North Point Wet Weather Facility, and the Bayside Wet Weather Facilities. The remaining collection system subject to this Order is not shown. The Oceanside Water Pollution Control Plant, Westside Wet Weather Facilities, and Treasure Island Wastewater Treatment Plant are shown only for reference.



PUMP STATIONS

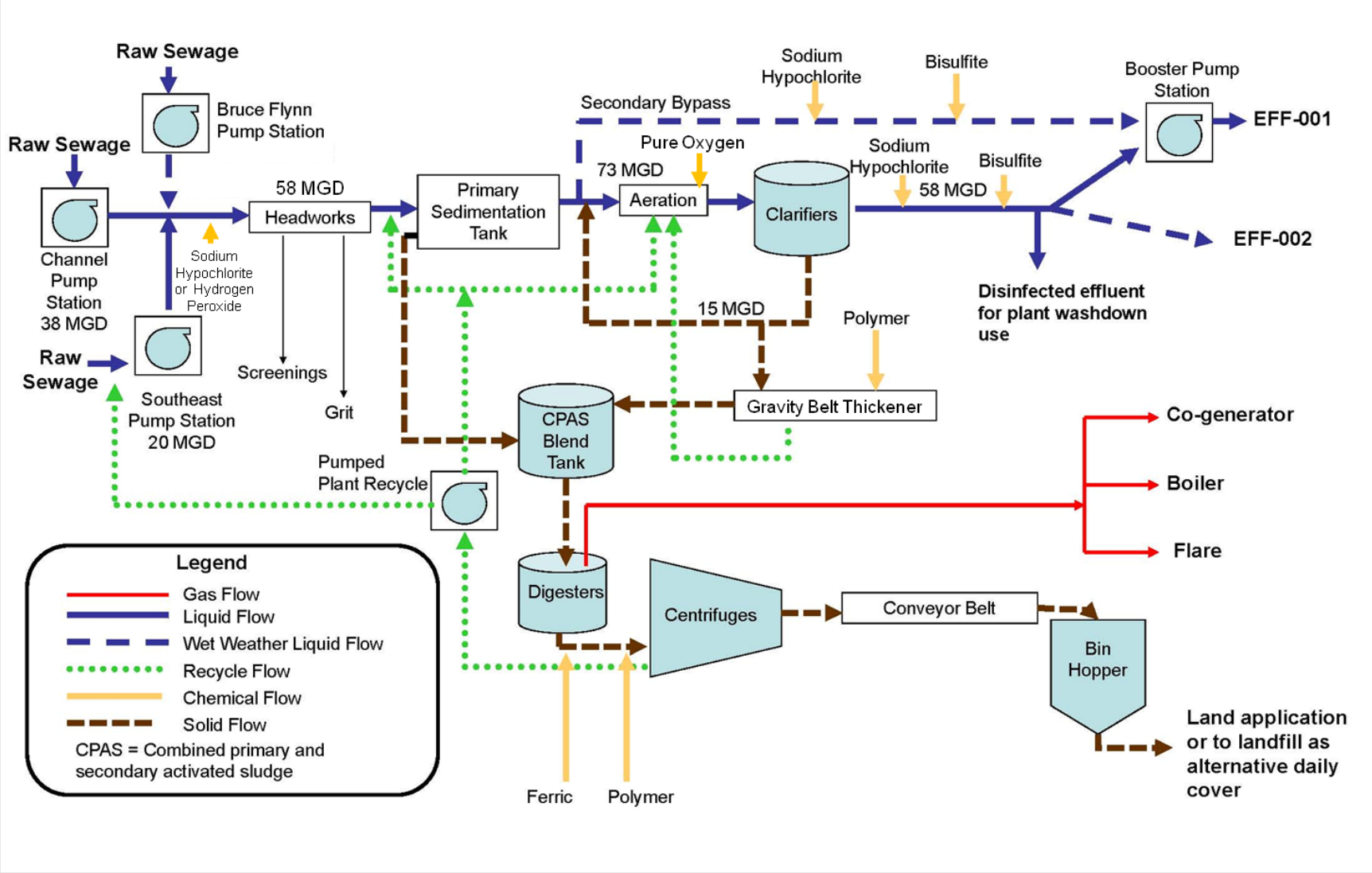
All-Weather Facilities	
1	Booster PS
2	Channel PS
3	Griffith PS
4	Hudson Avenue LS
5	Mariposa PS
6	North Shore PS
7	Palace of Fine Arts PS
11	Southeast LS
12	Tennessee PS
13	Twentieth Street LS
16	Bruce Flynn PS
Wet-Weather Facilities	
15	Berry PS
17	Cesar Chavez PS
18	Davidson Wet-Weather PS
19	Geary Underpass LS
20	Harriet Lucerne (WW) PS
21	Merlin/Morris PS
22	Rankin Wet-Weather PS
24	Shotwell PS
25	Sunnydale PS

PS = Pump Station
LS = Lift Station

COMBINED SEWER DISCHARGE POINTS

North Shore Area		Central Basin		Central Basin (cont'd)		Southeast Sector	
009	Baker Street	018	Howard Street	029	Mariposa Street	037	Evans Avenue
010	Pierce Street	019	Brannan Street	030	20th Street	38	Hudson Avenue
011	Laguna Street	022	Third Street	030a	22nd Street	040	Griffith Street South
013	Beach Street	023	Fourth Street North	031	Third Street North	041	Yosemite Avenue
015	Sansome Street	024	Fifth Street North	031A	Islais Creek North	042	Fitch Street
017	Jackson Street	025	Sixth Street North	032	Marin Street	043	Sunnydale Avenue
		026	Division Street	033	Selby Street		
		027	Sixth Street South	035	Third Street South		
		028	Fourth Street South				

ATTACHMENT C – PROCESS FLOW DIAGRAM



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of

equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. Approval. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 C.F.R. part 136 or, in the case of sludge use or disposal, approved under 40 C.F.R. part 136 unless otherwise specified in 40 C.F.R. part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years

from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) the analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits, and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions—Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and

regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, state, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions—Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions—Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions—Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly

responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (Alternatively, for an existing manufacturing, commercial, mining, or silvicultural discharge as referenced in 40 C.F.R. section 122.42(a), this notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 C.F.R. section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).) (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the

Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and State regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 C.F.R. sections 122.62, 122.63, and 124.5. If any discrepancies exist between this MRP and the "Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits" (Attachment G), this MRP shall prevail.

B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G. Equivalent test methods must be more sensitive than those specified in 40 C.F.R. section 136 and must be specified in this permit.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Locations

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description [1]
Influent	INF-001	Any point at the Southeast Plant upstream of the primary sedimentation basins at which all waste tributary to the treatment system is present, and preceding any phase of treatment. *Latitude 37.744611 Longitude -122.392111*
Influent	INF-002	Any point at the North Point Facility upstream of the primary sedimentation basins at which all waste tributary to the treatment system is present, and preceding any phase of treatment. *Latitude 37.806333 Longitude -122.409389*
Effluent	EFF-001A	During dry weather, any point at the Southeast Plant between the point at which all wastes have gone through complete secondary treatment, including disinfection, and Discharge Point No. 001 (deep water outfall). *Latitude 37.743611 Longitude -122.390000*
Effluent	EFF-001B	During wet weather, any point at the Southeast Plant at which adequate disinfection is assured and Discharge Point No. 001 (deep water outfall) (may be the same as Monitoring Location EFF-001A). *Latitude 37.743611 Longitude -122.390000*
Effluent	EFF-002	During wet weather, any point at the Southeast Plant between the point at which all wastes have gone through complete secondary treatment, including disinfection, and Discharge Point No. 002 (Islais Creek outfall). *Latitude 37.746944 Longitude -122.388056*

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description [1]
Effluent	EFF-003	During wet weather, any point at the North Point Facility between Discharge Point Nos. 003 and 004 (Pier 33 outfalls) and 005 and 006 (Pier 35 outfalls) and the point at which all waste tributary to those outfalls is present and adequate disinfection is assured. *Latitude 37.806667 Longitude -122.407500*
Combined Sewer Discharge	CSD-010	During wet weather, any point between Discharge Point No. 010 (Pierce Street outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.806944 Longitude -122.440000*
Combined Sewer Discharge	CSD-025	During wet weather, any point between Discharge Point No. 025 (Sixth Street North outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.071944 Longitude -122.396111*
Combined Sewer Discharge	CSD-029	During wet weather, any point between Discharge Point No. 029 (Mariposa Street outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.764722 Longitude -122.385278*
Combined Sewer Discharge	CSD-031A	During wet weather, any point between Discharge Point No. 031A (North Islais North outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.747778 Longitude -122.387500*
Combined Sewer Discharge	CSD-041	During wet weather, any point between Discharge Point Nos. 041 or 042 (Yosemite Avenue or Fitch Street outfalls) and the point at which all waste tributary to the outfalls is present. *Latitude 37.723889 Longitude -122.381389* or *Latitude 37.722222 Longitude -122.381389*
Combined Sewer Discharge	CSD-043	During wet weather, any point between Discharge Point No. 043 (Sunnydale Avenue outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.747222 Longitude -122.386944*
Shoreline	S-202.5	Crissy Field West *Latitude 37.811667 Longitude -122.490000*
Shoreline	S-202.4	Crissy Field (east of Lagoon) *Latitude 37.810278 Longitude -122.452778*
Shoreline	S-210.1	Aquatic Park (Hyde St. Pier) *Latitude 37.8150DW00 Longitude -122.425833*
Shoreline	S-211	Aquatic Park Beach East End *Latitude 37.814722 Longitude -122.424167*
Shoreline	S-300.1	Candlestick Point SRA (Sunnydale Cove Beach) *Latitude 37.715833 Longitude -122.394167*
Shoreline	S-301.1	Candlestick Point SRA (Windsurfer Circle) *Latitude 37.715278 Longitude -122.366607*
Shoreline	S-301.2	Candlestick Point SRA (Jack Rabbit Beach) *Latitude 37.718611 Longitude -122.366667*
Biosolids	BIO-001	Biosolids (treated sludge)

Footnote:

[1] Latitude and longitude information is approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor Southeast Plant influent at Monitoring Location INF-001 as follows. Only flow monitoring is required during wet weather.

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D [3]
Biochemical Oxygen Demand (5-day @ 20°C)(BOD_5)	mg/L	C-24	1/Week [3]
Total Suspended Solids (TSS)	mg/L	C-24	5/Week [3]
Cyanide, Total [2]	µg/L	Grab	1/Month [3]

Unit Abbreviations:

MGD = million gallons per day
MG = million gallons
mg/L = milligrams per liter
µg/L = micrograms per liter

Sample Type:

Continuous = measured continuously
C-24 = 24-hour composite sample
Grab = Grab sample

Sampling Frequency:

Continuous/D = measured continuously, and recorded and reported daily
1/Week = once per week
5/Week = five times per week
1/Month = once per month

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] Influent cyanide monitoring may be used to satisfy the pretreatment monitoring requirements in Table E-7.

[3] BOD_5, TSS, and total cyanide monitoring is required only during dry weather.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Dry Weather

During dry weather, the Discharger shall monitor Southeast Plant effluent at Monitoring Location EFF-001A as follows:

Table E-3. Effluent Monitoring — Dry Weather

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D
BOD_5	mg/L	C-24	1/Week [2]
TSS	mg/L	C-24	5/Week
Chemical Oxygen Demand (COD)	mg/L	C-24	5/Week [2]
Oil and Grease [3]	mg/L	Grab	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH [4]	standard units	Continuous or Grab	Continuous or 5/Week
Enterococcus [9]	MPN/100 mL	Grab	4/Year [8]
Fecal Coliform [9]	MPN/100 mL	Grab	1/Week
Total Residual Chlorine [5]	mg/L	Continuous or Grab	Continuous/H or 1/Hour
Acute Toxicity [6]	% Survival	Flow through	1/Month
Chronic Toxicity [7]	TUc	C-24	2/Year
Ammonia, Total	mg/L as N	Grab or C-24	1/Month
Copper, Total Recoverable	µg/L	C-24	1/Month
Cyanide, Total	µg/L	Grab	1/Month
Dioxin-TEQ	µg/L	Grab	2/Year
1,2-Diphenylhydrazine	µg/L	Grab	1/Month

Unit Abbreviations:

MGD = million gallons per day
mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
MPN/100 mL = most probable number per 100 milliliters
TUc = chronic toxicity units, equal to 100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC
µg/L = micrograms per liter

Sample Type:

Continuous = measured continuously
C-24 = 24-hour composite sample
Grab = grab sample

Sampling Frequency:

Continuous/H = measured continuously, and recorded and reported hourly
Continuous/D = measured continuously, and recorded and reported daily
1/Hour = once per hour
1/Week = once per week
3/Week = three times per week
5/Week = five times per week
1/Month = once per month
5/Month = five times per month
2/Year = twice per year
4/Year = four times per year

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] If the COD concentration exceeds 75 mg/L on two consecutive days, the Discharger shall increase the BOD_5 sampling frequency to daily until it demonstreates that the BOD_5 concentration is below 30 mg/L.

[3] Each oil and grease sampling and analysis event shall be conducted in accordance with U.S. EPA Method 1664.

[4] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in self-monitoring reports.

[5] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination. However, if monitoring continuously, the Discharger shall report for each day the maximum residual chlorine concentration based only on discrete readings from the continuous monitoring taken every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement.

[6] Acute bioassay tests shall be performed in accordance with MRP section V.A.

[7] Critical life stage toxicity tests shall be performed in accordance with MRP section V.B.

[8] The four samples shall be collected in different calendar months during the higher recreational water contact season (June through October). If the enterococcus effluent limitation is exceeded, the Discharger shall conduct 5/Month accelerated sampling for at least three consecutive months. If full compliance is demonstrated after the three months, the Discharger may return to the 4/Year sampling.

[9] Results may be reported as Colony Forming Units/100 milliliters (CFU/100 mL) if the laboratory method used provides results in CFU/100 mL.

B. Wet Weather

1. **Southeast Plant and North Point Facility Outfalls.** During wet weather, when wet weather facilities are operating, the Discharger shall monitor Southeast Plant effluent at Monitoring Locations EFF-001B and EFF-002, and North Point Facility effluent at Monitoring Location EFF-003, as follows:

Table E-4. Effluent Monitoring — Wet Weather

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D
TSS	mg/L	C-X	1/Month
COD	mg/L	C-X	1/Month
Oil and Grease	mg/L	Grab	1/Month
pH	standard units	Continuous or Grab	Continuous or 1/Month
Enterococcus [5]	MPN/100 mL [2]	Grab	1/Day [4]
Fecal Coliform	MPN/100 mL [2]	Grab	1/Day [4]
Total Residual Chlorine	mg/L	Continuous or Grab	Continuous/H or 1/Hour
Acute Toxicity [3]	% Survival	Grab	1/Month
Copper, Total Recoverable	µg/L	C-X	1/Month
Cyanide, Total	µg/L	C-X	1/Month
Ammonia, Total	mg/L as N	Grab	1/Month

Unit Abbreviations:

MGD = million gallons per day
mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
µg/L = micrograms per liter
MPN/100 mL = most probable number per 100 milliliters

Sample Type:

Continuous = measured continuously
C-X = composite sample comprised of individual grab samples collected at equal intervals of no more than one hour for the duration of the discharge event but not exceeding 24 hours. If an event does not last at least 24-hours, the Discharger shall sample for as long as possible and note the duration in its self-monitoring report.
Grab = grab sample

Sampling Frequency:

Continuous/H = measured continuously, and recorded and reported hourly
Continuous/D = measured continuously, and recorded and reported daily
1/Hour = once per hour
1/Month = once per month
1/Day = once per wet weather day

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] Results may be reported as colony forming units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] Acute bioassay tests shall be performed only at Monitoring Location EFF-001B and EFF-003 in accordance with MRP section V.A.

[4] Wet weather effluent samples shall be collected within 4 hours after discharges start (when discharges start between 4:00 a.m. and 2:00 p.m.). If the wet weather facility begins operation after 2:00 p.m., samples shall be collected first thing the next morning during business hours (by 9:00 a.m.), provided that the discharge is still occurring.

[5] Data from both wet and dry weather shall be included when calculating the geometric mean for compliance with this monthly wet weather limitation. For days with discharge but no sampling, the enterococcus densities shall be assumed to be the same as the densities of the most recent discharge samples. For days with no discharge, enterococcus densities shall be assumed to be 1 MPN/100 mL for calculational purposes.

2. Combined Sewer Discharge Outfalls. During wet weather, when combined sewer discharges are occurring, the Discharger shall monitor combined sewer discharges at Monitoring Locations CSD-010 through CSD-043 as follows:

Table E-5. Combined Sewer Discharge Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Event Duration	minutes	---	1/Event
Flow Volume [1]	MG	Continuous	1/Event

Unit Abbreviations:

MG = million gallons

Sample Type:

Continuous = measured continuously

Sampling Frequency:

1/Event = once per combined sewer discharge event

Footnote:

[1] Flow volume may be estimated using models.

The Discharger shall also record and report in its self-monitoring reports the following information for each combined sewer discharge event at Monitoring Locations CSD-010 through CSD-043:

a. Date and time that combined sewer discharge started;

b. Rainfall intensity and amount (aggregated hourly data); and

c. Information supporting discharge volume estimate (if estimated).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor whole effluent acute and chronic toxicity as follows.

A. Whole Effluent Acute Toxicity

1. During dry weather, acute toxicity at Discharge Point No. 001 (Monitoring Location EFF-001A) shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays. The Discharger may stop a bioassay if wet weather occurs during a 96-hour test. If so, the Discharger shall initiate another test as soon as possible (i.e., as soon as approximately 96 hours of dry weather is forecasted). The Discharger may choose to continue a test during wet weather unless the instantaneous influent flow to the Southeast Plant (at Monitoring Location INF-001 as defined in the MRP) exceeds 110 MGD and discharge occurs at Discharge Point No. 002.

During wet weather, acute toxicity at Discharge Point Nos. 001 and 003 through 006 (Monitoring Locations EFF-001B and EFF-003) shall be evaluated by measuring survival of test organisms exposed to 96-hour static bioassays.

2. Test organisms shall be rainbow trout (*Oncorhynchus mykiss*) or fathead minnow (*Pimphales promelas*). The Executive Officer may specify a more sensitive organism or, if testing a particular organism proves unworkable, the most sensitive organism available.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,* 5th Edition (EPA-821-R-02-012).

4. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment. The Discharger may manually adjust the pH of whole effluent acute toxicity samples prior to performing bioassays to minimize ammonia toxicity interference.

5. Bioassay water monitoring shall include, on a daily basis, pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of an acute toxicity limit occurs, the bioassay test shall be repeated with new fish as soon as practical and shall be repeated until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

B. Whole Effluent Chronic Toxicity

1. Monitoring Requirements

a. Sampling. During dry weather, the Discharger shall collect 24-hour composite effluent samples at Monitoring Location EFF-001A for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, the Discharger shall collect 24-hour composite samples on consecutive days.

b. Test Species. The test species shall be purple sea urchin (*Strongylocentroltus purpuratus*) or, if gravid purple sea urchin are unavailable, sand dollar (*Dendraster excentricus*), unless a more sensitive species is identified.

The Discharger shall conduct a screening chronic toxicity test as described in Appendix E-1 following any significant change in the nature of the effluent. If there is no significant change in the nature of the effluent, the Discharger shall conduct a screening test and submit the results with its application for permit reissuance.

c. Frequency. Chronic toxicity monitoring shall be as specified below:

i. The Discharger shall monitor routinely twice per year.

ii. The Discharger shall accelerate monitoring to monthly after either exceeding a three-sample median of 10 TUC or a single-sample maximum of 20 TU_c. Based on the TUc results, the Executive Officer may specify a different frequency for accelerated monitoring to ensure that accelerated monitoring provides useful information.

iii. The Discharger shall return to routine monitoring if accelerated monitoring does not exceed either trigger in ii, above.

iv. If accelerated monitoring confirms consistent toxicity in excess of either trigger in ii, above, the Discharger shall continue accelerated monitoring and initiate toxicity reduction evaluation (TRE) procedures in accordance with section V.B.3, below.

v. The Discharger shall return to routine monitoring after implementing appropriate elements of the TRE, and either the toxicity drops below both triggers in ii, above, or, based on the TRE results, the Executive Officer determines that accelerated monitoring would no longer provide useful information.

Monitoring conducted pursuant to a TRE shall satisfy the requirements for routine and accelerated monitoring while the TRE is underway.

d. Methodology. Sample collection, handling, and preservation shall be in accordance with U.S. EPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are *Short-Term Methods for Estimating the Chronic Toxcicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, currently first edition (EPA/600/R-95-136). If these protocols prove unworkable, the Executive Officer and the Environmental Laboratory Accreditation Program may grant exceptions in writing upon the Discharger's request with justification. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the chronic toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment.

e. Dilution Series. The Discharger shall conduct tests at 20%, 15%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged. Test sample pH may be controlled to the level of the effluent sample as received prior to being salted up.

2. Reporting Requirements

a. The Discharger shall provide toxicity test results for the current reporting period in the self-monitoring report and shall include the following, at a minimum, for each test.

i. Sample date

ii. Test initiation date

iii. Test species

iv. End point values for each dilution (e.g., number of young, growth rate, percent survival)

v. No Observable Effect Level (NOEL) values in percent effluent. The NOEL shall equal the IC_{25} or EC_{25} (see MRP Appendix E-1). If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall equal to the No Observable Effect Concentration (NOEC) derived using hypothesis testing. The NOEC is the maximum percent effluent concentration that causes no observable effect on test organisms based on a critical life stage toxicity test.

vi. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}, EC_{40}, and EC_{50}) as percent effluent

vii. TUc values (100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC

viii. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

ix. IC_{50} or EC_{50} values for reference toxicant tests

x. Available water quality measurements for each test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, and ammonia)

b. The Discharger shall provide the results of the most recent three chronic toxicity tests and the 3-sample median in the self-monitoring report as TUc's.

3. Toxicity Reduction Evaluation (TRE)

a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order to be ready to respond to toxicity events. The Discharger shall review and update the work plan as necessary so that it remains current and applicable to the discharge and discharge facilities.

b. Within 30 days of exceeding either chronic toxicity trigger in section V.B.1.c.ii, above, the Discharger shall submit a TRE work plan, which shall be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Within 30 days of completing an accelerated monitoring test observed to exceed either trigger in section V.B.1.c.ii, above, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including U.S. EPA guidance materials. The Discharger shall conduct the TRE as a tiered evaluation as summarized below.

i. Tier 1 shall consist of basic data collection (routine and accelerated monitoring).

ii. Tier 2 shall consist of evaluation of treatment process optimization, including operational practices and in-plant process chemicals.

iii. Tier 3 shall consist of a toxicity identification evaluation (TIE).

iv. Tier 4 shall consist of evaluation of options for additional effluent treatment processes.

v. Tier 5 shall consist of evaluation of options for modifications of in-plant treatment processes.

vi. Tier 6 shall consist of implementation of selected toxicity control measures, and followup monitoring and confirmation of implementation success.

e. The Discharger may end the TRE at any stage if monitoring finds there is no longer consistent toxicity (i.e., compliance with Provision IV.A.5 of the Order).

f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. The Discharger shall employ all reasonable efforts using currently available TIE methodologies.

g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the toxic substances from the discharge. The Discharger shall take all reasonable steps to reduce toxicity to levels below the chronic toxicity limit.

h. Many recommended TRE elements parallel required or recommended efforts related to source control, pollution prevention, and stormwater control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to demonstrate compliance with TRE requirements.

i. Chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful. Regional Water Board enforcement considerations will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. RECEIVING WATER MONITORING REQUIREMENTS

A. Regional Monitoring. The Discharger shall continue to participate in the Regional Monitoring Program, which collects data on pollutants and toxicity in San Francisco Bay water, sediment, and biota.

B. Shoreline Monitoring. Following any combined sewer discharge event at Discharge Point Nos. 009, 010, 011, 013, or 015, the Discharger shall monitor shoreline receiving waters at Monitoring Locations S-202.4, S-202.5, S-210, and S-211. Following any combined sewer discharge event at Discharge Point Nos. 040, 041, or 042, the Discharger shall monitor at Monitoring Location S-301.2. Following any combined sewer discharge event at Discharge Point No. 043, the Discharger shall monitor at Monitoring Locations S-300.1 and S-301.1. Monitoring shall be conducted at each location as follows for up to seven days or until the single-sample bacteriological standards of Cal. Code of Regs. tit. 17, section 7958(a)(1), are met at that location (i.e., the enterococcus density is less than 104 most probable number (MPN)/100 mL and the fecal coliform density is less than 400 MPN/100 mL). Samples shall be collected between 8:00 a.m. and 4:00 p.m.

Table E-6. Shoreline Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Enterococcus [1]	MPN/100 mL [3]	Grab	1/Day
Fecal Coliform [2]	MPN/100 mL [3]	Grab	1/Day

Unit Abbreviations:

MPN/100 mL = most probable number per 100 milliliters

Sample Type:

Grab = Grab sample

Sampling Frequency:

1/Day = once per day

Footnotes:

[1] The Discharger shall monitor for enterococcus using U.S. EPA-approved methods, such as the IDEXX Enterolert method. When replicate analyses are made, the reported result shall be the geometric mean of the replicate results.

[2] Alternatively, the Discharger may measure *E. coli* as recommended for the U.S. EPA Beach Monitoring Program. *E. coli* may be measured using the IDEXX Colilert method.

[3] Results may be reported as CFU/100 mL if the test method used provides results in CFU/100 mL.

VII. PRETREATMENT AND BIOSOLIDS MONITORING REQUIREMENTS

The Discharger shall comply with the following pretreatment monitoring requirements for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001A), and biosolids (at Monitoring Location BIO-001). The Discharger shall report summaries of analytical results in annual and semi-annual pretreatment reports in accordance with Attachment H. At its option, the Discharger may also report biosolids analytical results in its electronic self-monitoring reports by manual entry, by EDF/CDF, or as an attached file.

Table E-7. Pretreatment and Biosolids Monitoring

Constituents	Sampling Frequency			Sample Type	
	Influent INF-001 [1]	Effluent EFF-001A [1]	Biosolids BIO-001	Influent and Effluent	Biosolids
VOC [2]	2/Year	2/Year	2/Year	Grab	Grabs [6c]
BNA [3]	2/Year	2/Year	2/Year	Grab	Grabs [6c]
Metals [4]	1/Month	1/Month	2/Year	C-24 [6a]	Grabs [6c]
Hexavalent Chromium [5]	1/Month	1/Month	2/Year	Grab	Grabs [6c]
Mercury	1/Month	1/Month	2/Year	Grab or C-24 [6a][6b]	Grabs [6c]
Cyanide, Total	1/Month	1/Month	---	Grab	Grabs [6c]

Sample Type:

C-24 = 24-hour composite sample
Grab = Grab sample

Sampling Frequency:

1/Month = once per month
2/Year = twice per year

Footnotes:

[1] Influent and effluent monitoring conducted in accordance with Tables E-2 and E-3 may be used to satisfy these pretreatment monitoring requirements.

[2] VOC: volatile organic compounds

[3] BNA: base/neutrals and acids extractable organic compounds

[4] The metals are arsenic, cadmium, copper, lead, nickel, silver, zinc, and selenium.

[5] The Discharger may elect to report total chromium instead of hexavalent chromium. Samples collected for total chromium measurements shall be 24-hour composites.

[6] Sample types:

a. If an automatic compositor is used, the Discharger shall obtain 24-hour composite samples through flow-proportioned composite sampling. Alternatively, 24-hour composite samples may consist of discrete grab samples combined (volumetrically flow-weighted) prior to analysis or mathematically flow-weighted.

b. The Discharger may use automatic compositors for mercury if either (1) the compositing equipment (hoses and containers) complies with ultra-clean specifications, or (2) equipment blank samples demonstrate that the compositing equipment has not contaminated the sample.

c. The biosolids sample shall be a composite of the biosolids to be disposed. Biosolids collection and monitoring shall comply with the requirements specified in Attachment H, Appendix H-4. The Discharger shall also comply with the biosolids monitoring requirements of 40 C.F.R. part 503.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping, with modifications shown in section IX, below.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for SMR submittal in the event of a planned service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. **Monthly SMRs —** Monthly SMRs shall be due 30 days after the end of each calendar month, covering that calendar month. The monthly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G of this Order. See Provision VI.C.2 (Effluent Characterization Study and Report) of this Order for information that must also be reported with monthly SMRs.

      Monthly SMRs shall include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the Discharger shall include the results of such monitoring in the calculations and reporting for the SMR.

   b. **Annual SMR —** Annual SMRs shall be due February 1 each year, covering the previous calendar year. The annual SMR shall contain the items described in sections V.C.1.f of Attachment G. See also Provisions VI.C.2 (Effluent Characterization Study and Report) and VI.C.5.b.ix (Monitor to Characterize Wet Weather Discharge Impacts and Efficacy of Controls) of the Order for requirements to submit reports with the annual SMR.

   c. **Specifications for Submitting SMRs to CIWQS —** The Discharger shall submit analytical results and other information using one of the following methods.

Table E-8. CIWQS Reporting

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
All parameters identified in influent, effluent, and receiving water monitoring tables (except Dissolved Oxygen and Temperature)	Required for all results	
Dissolved Oxygen Temperature	Required for monthly maximum and minimum results only [1]	Discharger may use this method for all results or keep records
Cyanide Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Zinc Dioxins and Furans (by U.S. EPA Method 1613)	Required for all results [2]	
Antimony Beryllium Thallium Other Pollutants (by U.S. EPA Methods 601, 602, 608, 610, 614, 624, and 625)	Not required (unless identified in influent, effluent, or receiving water monitoring tables), but encouraged [1]	Discharger may use this method and submit results with application for permit reissuance, unless data are submitted by CDF/EDF upload
Volume and Duration of Blended Discharge [3]	Required for all blended effluent discharges	

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	Attached File
Analytical Method	Not required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time	Not required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in this MRP, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order (except for biosolids, sludge, or ash provisions).

[3] The requirement for volume and duration of blended discharge applies only if this Order authorizes the Discharger to discharge blended effluent.

The Discharger shall arrange all reported data in a tabular format and summarize data to clearly illustrate whether the Facility is operating in compliance with effluent limitations. The Discharger is not required to duplicate the submittal of data entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format, the Discharger shall electronically submit the data in a tabular format as an attachment.

3. **Monitoring Periods.** Monitoring periods for all required monitoring shall be as set forth below unless otherwise specified:

Table E-9. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All
1/Hour	Permit effective date	Hourly
1/Day	Permit effective date	Midnight through 11:59 p.m. or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1/Week or 2/Week or 5/Week	Sunday following permit effective date or on permit effective date if on Sunday	Sunday through Saturday
1/Month	First day of calendar month following permit effective date or on permit effective date if on first day of month	First day of calendar month through last day of calendar month
1/2 Months	First day of calendar month following permit effective date or on permit effective date if that date is first day of month	First day of calendar month through last day of next calendar month
1/Year	January 1	January 1 through December 31
2/Year	Closest January 1 or July 1 following (or on) permit effective date	November 1 through April 30 May 1 through October 31
4/Year	Closest January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
1/5 Years	Permit effective date	Once during the Order term no more than 12 months prior to applying for permit reissuance.

4. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means the laboratory considers appropriate.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in the Fact Sheet and Attachments A, D, and G. For purposes of reporting and administrative enforcement by the Regional Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

C. Discharge Monitoring Reports (DMRs)

1. At any time during the term of this Order, the State Water Board or Regional Water Board may notify the Discharger to electronically submit DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. Once notified by the State Water Board or Regional Water Board, the Discharger shall submit hard copy DMRs. The Discharger shall sign and certify DMRs as Attachment D requires. The Discharger shall submit original DMRs to one of the addresses listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results shall be reported on official U.S. EPA pre-printed DMR forms (EPA Form 3320-1) or self-generated forms that follow the exact same format as EPA Form 3320-1.

IX. MODIFICATIONS TO ATTACHMENT G

This MRP modifies Attachment G as indicated below:

A. Attachment G sections V.C.1.f and V.C.1.g are revised as follows, and section V.C.1.h (Reporting data in electronic format) is deleted.

f. Annual self-monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance (this summary table is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

2) Comprehensive discussion of treatment plant performance and compliance with the permit (this discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater (this item is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs addressed as follows, unless the Discharger submits SMRs electronically to CIWQS:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format – *Deleted*

B. Attachment G sections V.E.2, V.E.2.a, and V.E.2.c are revised as follows, and sections V.E.2.b (24-hour Certification) and V.E.2.d (Communication Protocol) are deleted.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

supersede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008.

a. Two (2)-Hour Notification

For any unauthorized discharges that enter a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the California Emergency Management Agency (CalEMA, currently 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. Timely notification by the Discharger to CalEMA also satisfies notification to the Regional Water Board. Notification shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification – *Deleted*

c. 5-day Written Report

Within five business days, the Discharger shall submit a written report that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol – *Deleted*

X. MODIFICATIONS TO ATTACHMENT H

This MRP modifies Attachment H as indicated below.

A. Attachment H, Appendix H-3, Signature Requirements for Pretreatment Annual and Semiannual Reports, is revised as follows.

The pretreatment annual and semiannual reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Discharger (POTW - 40 C.F.R. section 403.12[m]). Signed copies of the reports shall be submitted to the State Water Board and the Regional Water Board through the electronic self-monitoring report (eSMR) module of the California Integrated Water Quality System (CIWQS).

APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series of 100%, 50%, 25%, 12.5%, 6.25%, and 0%, where "%" is percent effluent as discharged, or as otherwise approved by the Executive Officer if different dilution ratios are needed to reflect discharge conditions.

C. The Discharger shall submit a screening phase proposal. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharger shall commence with screening phase monitoring.

APPENDIX E-2
SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	*(Skeletonema costatum)* *(Thalassiosira pseudonana)*	Growth rate	4 days	1
Red alga	*(Champia parvula)*	Number of cystocarps	7–9 days	3
Giant kelp	*(Macrocystis pyrifera)*	Percent germination; germ tube length	48 hours	2
Abalone	*(Haliotis rufescens)*	Abnormal shell development	48 hours	2
Oyster Mussel	*(Crassostrea gigas)* *(Mytilus edulis)*	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	*(Strongylocentrotus purpuratus, S. franciscanus)* *(Dendraster excentricus)*	Percent fertilization or larval development	1 hour (fertilization) or 72 hours (development)	2
Shrimp	*(Americamysis bahia)*	Percent survival; growth	7 days	3
Shrimp	*(Holmesimysis costata)*	Percent survival; growth	7 days	2
Topsmelt	*(Atherinops affinis)*	Percent survival; growth	7 days	2
Silversides	*(Menidia beryllina)*	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/821/R-02/014. October 2002.

Table AE-2. Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	*(Pimephales promelas)*	Survival; growth rate	7 days	4
Water flea	*(Ceriodaphnia dubia)*	Survival; number of young	7 days	4
Alga	*(Selenastrum capricornutum)*	Final cell density	4 days	4

Toxicity Test Reference:

1. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, fourth Edition Chronic manual (EPA-821-R-02-013, October 2002).

Table AE-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay [1]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater [2] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

[1] (a) Marine refers to receiving water salinities greater than 1 part per thousand (ppt) at least 95 percent of the time during a normal water year.

(b) Freshwater refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

(c) Estuarine refers to receiving water salinities that fall between those of marine and freshwater, as described above.

[2] The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 ppt greater than 95 percent of the time, or

(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

ATTACHMENT F - FACT SHEET

Contents

Tables

ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of the Order, the Regional Water Board incorporates this Fact Sheet as its findings supporting the issuance of the Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 386010001
CIWQS Place ID	256499
Discharger	City and County of San Francisco
Facility Name	Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System
Facility Address	San Francisco Public Utilities Commission / Wastewater Enterprise 750 Phelps Street San Francisco, CA 94124
	San Francisco County
Facility Contact, Title, Phone	Tommy Moala, Assistant General Manager, Wastewater Enterprise, (415) 554-2465
Authorized Person to Sign and Submit Reports	Same as Facility Contact
Mailing Address	San Francisco Public Utilities Commission 525 Golden Gate Ave., 13th Floor San Francisco, CA 94102
Billing Address	Same as Mailing Address
Facility Type	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	Not Applicable
Mercury and PCBs Requirements	NPDES Permit No. CA0038849
Permitted Flow	85.4 million gallons per day (MGD)
Design Flow	Southeast Water Pollution Control Plant: 85.4 MGD – Average dry weather design flow capacity; 250 MGD – Wet weather design flow capacity: 150 MGD receives primary and secondary treatment, and additional 100 MGD receives only primary treatment. North Point Wet Weather Facility: 150 MGD – Wet weather design flow capacity (only primary treatment).
Watershed	San Francisco Bay
Receiving Water	San Francisco Bay
Receiving Water Type	Marine

A. The City and County of San Francisco (Discharger) is the owner and operator of the Southeast Water Pollution Control Plant (Southeast Plant), North Point Wet Weather Facility (North Point Facility), Bayside Wet Weather Facilities, and wastewater collection system (collectively Facility).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Discharger is regulated pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664. It was previously subject to Order No. R2-2008-0007 (previous order), which was adopted on January 30, 2008, and expired on March 31, 2013. The Facility discharges wastewater to Central and Lower San Francisco Bay, waters of the United States within the San Francisco Bay watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a Facility flow schematic.

The Discharger must file a petition with the State Water Resources Control Board (State Water Board), Division of Water Rights, and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

C. The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its WDRs and NPDES permit on October 2, 2012.

D. The discharge is also regulated under NPDES Permit No. CA0038849, which establishes requirements on mercury and polychlorinated biphenyls (PCBs) from wastewater discharges to San Francisco Bay. This Order does not affect the mercury and PCBs permit.

II. FACILITY DESCRIPTION

A. Wastewater and Biosolids Treatment and Controls

1. **Location and Service Area.** The Facility serves eastern San Francisco and portions of Brisbane and Daly City (served by the City of Brisbane, the Bayshore Sanitary District, and the North San Mateo County Sanitation District). The service area population is approximately 580,000.

   The Southeast Plant is located on Phelps Street at Jarrold Avenue near the Islais Creek Channel. It provides primary and secondary treatment of combined wastewater and stormwater. The North Point Facility is located on Bay Street near The Embarcadero. It provides primary treatment of combined wastewater and stormwater during wet weather. The Bayside Wet Weather Facilities are located throughout the eastern side of San Francisco, primarily near the shore. They provide equivalent-to-primary treatment during wet weather.

2. **Collection System.** The collection system is primarily a combined sewer system that conveys wastewater and stormwater to the Southeast Plant, North Point Facility, and Bayside Wet Weather Facilities. It consists of approximately 600 miles of pipe, and 7 major and 11 minor pump stations. Separate sanitary and storm drains serve isolated areas, including parts of Candlestick Point and Mission Bay. The Facility also receives wastewater from three satellite wastewater collection systems: the Bayshore Sanitary District (portions of Brisbane and Daly City), the City of Brisbane (residential sector), and the North San Mateo County Sanitation District (portions of Daly City). For the purposes of this Order, the Facility does not include the satellite collection systems.

3. **Wastewater Treatment.** The Discharger operates the Southeast Plant, North Point Facility, and Bayside Wet Weather Facilities to maximize treatment.

   a. **Southeast Plant.** During dry weather, the Southeast Plant provides secondary wastewater treatment. The treatment processes include a headworks (with coarse and fine bar screens, and grit removal), primary sedimentation tanks, pure oxygen aeration basins, secondary clarifiers, and chlorine contact basins (for chlorination using sodium hypochlorite and dechlorination using sodium bisulfite). These processes are shown in the diagram in Attachment C. The Southeast Plant has a dry weather design capacity of 85.4 MGD. From June 2010 through August 2012, its average dry weather flow was 58 MGD.

      During wet weather, the Southeast Plant processes up to 250 MGD of combined wastewater (i.e., sewage, industrial wastewater, and stormwater). Up to 150 MGD receives both primary and secondary treatment; the remaining flow (up to 100 MGD) receives only primary treatment. The entire volume is disinfected prior to discharge.

   b. **North Point Facility.** The North Point Facility discharges only during wet weather and provides primary treatment of combined wastewater. The treatment consists of bar screens, sedimentation tanks equipped with skimmers (clarification, removal of floatables), sodium hypochlorite injection, and dechlorination using sodium bisulfite addition. The North Point Facility can provide primary treatment for up to 150 MGD of combined wastewater. The entire volume of treated wastewater is disinfected and dechlorinated prior to discharge. Solids are directed to the Southeast Plant for digestion.

      The North Point Facility discharges under the following circumstances:

      - the North Shore Storage/Transport Box is at 200 inches;
      - within 60 minutes of any combined sewer discharge through Discharge Point Nos. 013 through 017; or
      - as necessary to minimize the likelihood of combined sewer discharges in the Central and Southeast Drainage Basins.

   c. **Bayside Wet Weather Facilities.** During dry weather, storage/transport structures transport wastewater to the Southeast Plant. During wet weather, these structures transfer combined wastewater to the Southeast Plant and, if necessary, the North Point Facility. They also provide storage for more than 120 million gallons of combined wastewater. In the event that the capacities of the Southeast Plant, North Point Facility, and storage/transport structures are exceeded, the combined wastewater receives the equivalent of primary treatment in the storage/transport structures and is discharged to San Francisco Bay through any one of 29 shoreline combined sewer discharge structures. The treatment in the storage/transport structures consists of settling solids with a series of baffles and weirs that also remove floatable materials prior to discharge. This process equates to the minimum treatment specified in U.S. EPA's *Combined Sewer Overflow Control Policy* (see Fact Sheet section III.C.8). After the wet weather is over, wastewater and accumulated solids remaining in the storage/transport structures are sent to the Southeast Plant for secondary treatment.

4. **Sludge and Biosolids Management.** Sludge from the primary and secondary clarification operations is processed using anaerobic digestion. The process consists of gravity belt thickeners for waste activated sludge thickening, mesophilic anaerobic digesters, and horizontal bowl centrifuges for dewatering. After digestion, the sludge is conditioned with ferric chloride and polymer, dewatered, and stored in cake hoppers for hauling. The digested and dewatered biosolids are beneficially used at a permitted landfill or land-applied at a permitted site. A portion of the biosolids is blended with green waste to create Class A compost. Class B biosolids are land-applied on farms in Solano and Sonoma counties or used at a landfill.

B. Discharge Points and Receiving Waters

1. **Dry Weather Discharges.** During dry weather, all flow receives secondary treatment and is discharged to Lower San Francisco Bay (a tidally-influenced, marine waterbody) through a deep water outfall (Discharge Point No. 001) at Pier 80, which is immediately north of the Islais Creek Channel. The outfall is approximately 810 feet east of Pier 80 at a depth of approximately 43 feet below mean lower low water. A diffuser at the outfall consists of 18 ports placed 15.9 feet apart on center along the terminal end of the outfall. The length of the diffuser is oriented approximately 90 degrees off north, perpendicular to the predominant current direction. The diffuser port openings are 8 inches in diameter, located at an elevation 42 inches above the sediment bed, and set at 0 degrees from horizontal.

   Following a September 2010 inspection that discovered that some fittings on the diffuser risers had broken off, the Discharger began replacing the discharge ports on the diffuser. The number of ports will remain the same, but the new ports will be equipped with duckbill valves to prevent rocks and debris from entering. The duckbill valves will likely increase dilution at the outfall.

2. **Wet Weather Discharges.** During wet weather, when secondary treatment capacity at the Southeast Plant has been exceeded, a portion of the primary-treated effluent bypasses aeration and secondary clarification. The bypassed primary effluent is chlorinated and dechlorinated, and then blended with disinfected secondary-treated wastewater and discharged through Discharge Point No. 001. The discharge from the Southeast Plant through Discharge Point No. 001 is maximized up to 110 MGD. Effluent flows in excess of 110 MGD are discharged via the Quint Street shallow water outfall into Islais Creek (Discharge Point No. 002). All effluent discharged through Discharge Point No. 002 receives secondary treatment, and all primary treated effluent is directed to the deep water outfall. Up to 140 MGD of secondary-treated wastewater may be discharged through Discharge Point No. 002. Under the most critical circumstances, up to 100 MGD of disinfected primary-treated effluent may be blended with 10 MGD of disinfected secondary-treated effluent and discharged through Discharge Point No. 001.

   When necessary, treated wastewater from the North Point Facility is discharged into San Francisco Bay through four deepwater outfalls, two of which discharge at the end of Pier 33 (Discharge Point Nos. 003 and 004) and two of which discharge at the end of Pier 35 (Discharge Point Nos. 005 and 006). If the capacities of the Southeast Plant, the North Point Facility, and the storage/transport structures are exceeded, wastewater in the storage/transport structures is discharged to San Francisco Bay through one or more of the 29 combined sewer discharge structures (Discharge Point Nos. 009 through 043).

C. Summary of Existing Requirements and Monitoring Data

Effluent limitations contained in the previous order and representative monitoring data from the previous order term are presented below:

Table F-2. Previous Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations					Monitoring Data (4/08–9/12)
		Monthly Average	Weekly Average	Daily Maximum	Instant-aneous Maximum	Instant-aneous Minimum	Highest Daily Discharge
Dry Weather (Discharge Point No. 001)							
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	30	45	---	---	---	47 [6]
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---	62 [6]
Oil and Grease	mg/L	10	---	20	---	---	17
pH	s.u.	---	---	---	9.0	6.0	6.1 – 7.7
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	35 [1]	---	---	---	---	16 [4]
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	270
Copper	µg/L	53 [3]	---	76 [3]	---	---	37
Lead	µg/L	36	---	89	---	---	1.6
Silver	µg/L	7	---	22	---	---	2.6
Zinc	µg/L	490	---	720	---	---	55
Cyanide	µg/L	20 [4]	---	43 [4]	---	---	9.5
Dioxin-TEQ	mg/yr			[5]			0 [5]
Tetrachloroethylene	µg/L	84	---	240	---	---	0.79
Bis (2-ethylhexyl) phthalate	µg/L	55	---	110	---	---	1.7
Ammonia	mg/L as N	190	---	290	---	---	42
Tributyltin	µg/L	0.032	---	0.065	---	---	< 0.0026
Wet Weather (Discharge Point No. 001)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	600
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	450
Wet Weather (Discharge Point No. 002)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	>24,000

Parameter	Units	Effluent Limitations					Monitoring Data (4/08–9/12)
		Monthly Average	Weekly Average	Daily Maximum	Instant-aneous Maximum	Instant-aneous Minimum	Highest Daily Discharge
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	680 [7]
Wet Weather (Discharge Point Nos. 004 through 006)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	5,800
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	>16,000 [7]

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
s.u. = standard units
CFU/100 mL = colony forming units per 100 milliliters
MPN/100 mL = Most Probable Number per 100 milliliters
mg/L as N = milligrams per liter as nitrogen
mg/yr = milligrams per year

Footnotes:

[1] Monthly geometric mean.

[2] The 30-day moving median value was not to exceed 500 MPN/100 mL and no more than 10 percent of the samples in any 30-day period were to equal or exceed 1,100 MPN/100 mL.

[3] Final effluent limitations for copper became effective on the effective date of the copper site-specific objectives (January 6, 2009).

[4] Final effluent limitations for cyanide became effective on the effective date of the cyanide site specific objectives (July 22, 2008).

[5] Final effluent limitations for dioxin-TEQ became effective on June 30, 2012. The dioxin-TEQ limit was 1.6 mg/year. Compliance was to be based on the product of the average concentration in samples collected each year and the annual dry weather flow. No dioxin or furan congener was detected above the ML in Attachment G, Table A; therefore, in accordance with Attachment G section V.C.1.c.3, the 2012 dioxin-TEQ discharge was 0 mg/year.

[6] The monthly and weekly average BOD_5 and TSS concentrations at these times complied with BOD_5 and TSS effluent limitations.

[7] The 30-day median and 10th percentile fecal coliform densities at these times complied with fecal coliform effluent limitations.

Table F-3. Additional Wet Weather Monitoring Data

Parameter	Units	Discharge Point No. 001		Discharge Point No. 002		Discharge Point Nos. 003 through 006	
		Range	Median [1]	Range	Median [1]	Range	Median [1]
Chemical Oxygen Demand (COD)	mg/L	53 – 200	120	25 – 100	52	74 – 360	160
Oil and Grease	mg/L	--	--	--	--	<5 – 43	9.5
Total Residual Chlorine	mg/L	0	0	0	0	0	0
Enterococcus	MPN/ 100 mL	<10 – 600	<10	<10 – >24,000	31	<10 – 5,800	<10
Fecal Coliform	MPN/ 100 mL	<2 – 450	<10	<2 – 680	<10	<2 – >16,000	<10
Copper	µg/L	3 – 64	35	1 – 17	8	5 – 99	45
Lead	µg/L	1 – 43	12	0.1[2] – 2	1	1 – 31	13

Mercury	µg/L	<0.2 – 0.40	<0.2	<0.2	<0.2	<0.2 – 0.30[2]	<0.2
Silver	µg/L	0.04 – 2.6	0.28	0.03[2] – 0.51	0.14	0.04[2] – 0.75	0.32
Zinc	µg/L	12 – 230	100	4 – 64	32	14 – 290	130
Cyanide	µg/L	<3 – 3.3[2]	<3	<3	<3	1.9[2] – 12	<3
Ammonia	mg/L as N	3 – 29	5	7 – 41	32	2 – 14	5

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
MPN/100 mL = Most Probable Number per 100 milliliters
mg/L as N = milligrams per liter as nitrogen

Footnotes:

[1] Median calculation reflects inclusion of estimated concentrations (i.e., detected but not quantified, DNQs) and nondetects (at the detection limit).

[2] Estimated concentration (i.e., detected but not quantified, DNQ)

D. Summary of Combined Sewer Discharge Events

The following tables summarize combined sewer discharge events over a 14-year period and estimated average combined sewer discharge event durations for wet season 2008-2009 through wet season 2012-2013:

Table F-4. Frequency of Combined Sewer Discharge Events

Year	Rainfall (inches)	Number of Combined Sewer Discharge Events		
		North Shore Basin [2]	Central Basin [3]	Southeast Basin [3]
1998-1999	17.0	1	13	0
1999-2000	20.9	3	12	1
2000-2001	15.8	0	8	0
2001-2002	19.3	2	9	2
2002-2003	21.1	3	14	4
2003-2004	16.9	4	8	2
2004-2005	28.2	4	15	1
2005-2006	28.9	3	16	2
2006-2007	15.1	1	5	1
2007-2008	17.4	3	7	2
2008-2009	15.6	3	4	1
2009-2010	22.4	5	11	3
2010-2011	26.3	6	21	0
2011-2012	15.9	2	8	1
14-Year Median	**18.4**	**3**	**10**	**1**
Design Criterion [1]		**4**	**10**	**1**

Footnotes:

[1] These criteria were based on 70 years of historic rainfall data and used to design the the Bayside Wet Weather Facilities. They are useful in evaluating system performance.

[2] North Shore Basin combined sewer discharges occur from Discharge Point Nos. 009 through 017.

[3] Central Basin combined sewer discharges occur from Discharge Point Nos. 018 through 035.

[4] Southeast Basin combined sewer discharges occur from Discharge Point Nos. 037 through 043.

Table F-5. Durations of Combined Sewer Discharge Events

Northshore Basin		Central Basin		Southeast Basin	
Discharge Point	Estimated Average Duration (Hours)	Discharge Point	Estimated Average Duration (Hours)	Discharge Point	Estimated Average Duration (Hours)
009	2	018	3	037	5
010	2	019	3	038	5
011	0	022	3	040	1
013	4	023	3	041	1
015	2	024	3	042	1
017	3	025	3	043	1
		026	3		
		027	3		
		028	3		
		029	2		
		030	2		
		030A	2		
		031	4		
		031A	4		
		032	4		
		033	4		
		035	4		

E. Compliance Summary

1. **Effluent Limitation Violations.** The Discharger violated its wet weather enterococcus limit ten times during the previous order term, as listed in the following table:

Table F-6. Wet Weather Enterococcus Effluent Limitation Violations

Violation Date	Monitoring Location	Unit	Effluent Limit	Reported Value
December 16, 2008	EFF-002	MPN/100mL	104	110
January 22, 2009	EFF-002	MPN/100mL	104	8,664 [1]
April 7, 2009	EFF-002	MPN/100mL	104	>24,196 [1]
January 29, 2010	EFF-002	MPN/100mL	104	11,199 [1]
December 5, 2010	EFF-001B	MPN/100mL	104	402
January 30, 2011	EFF-001B	MPN/100mL	104	598
March 19, 2011	EFF-001B	MPN/100mL	104	784 [1]
March 15, 2011	EFF-003	MPN/100mL	104	1,317 [2]
March 24, 2011	EFF-003	MPN/100mL	104	5,794 [2]
November 16, 2012	EFF-003	MPN/100mL	104	108

Footnotes:

[1] The Discharger asserts that these values may be false positives since simultaneous fecal coliform results were relatively low.

[2] These violations may be subject to minimum penalties of $3,000 each pursuant to California Water Code §13385(i).

The Discharger asserts that four reported values may be false positives due to matrix interference because, in each case, simultaneous fecal coliform results were relatively low.

However, the Discharger certified these results and, to date, has presented no corroborating information to invalidate them pursuant to MRP section XI.D.2 or Attachment G section V.C.1.a.5 of the previous order. The Discharger modified its sampling practices in early 2010 to test for interference before completing enterococcus analyses. As for the other violations, the Discharger points to the challenge of adding sufficient chlorine when operating at maximum hydraulic capacity, indicating that sudden stormwater surges make predicting the chlorine dose necessary for compliance difficult. The Discharger is considering options but has not proposed corrective actions.

The March 15 and 24, 2011, violations may be subject to minimum penalties of $3,000 each pursuant to California Water Code section 13385(i) because they are the fourth and fifth effluent limit violations within six months. Regional Water Board staff will evaluate relevant evidence and present the matter for Regional Water Board consideration as a separate action in the near future, as appropriate.

2. **Inspections.** The Facility is subject to annual compliance evaluation inspections. During the previous order term, there were five inspections, four of which focused on treatment plant operations at the Southeast Plant. The treatment plant inspections concluded with satisfactory ratings for compliance. An October 2010 inspection focused on the collection system.

   The collection system inspection addressed two main issues: (1) accumulation of grease and debris in the storage/transports; and (2) Discharger responsiveness to reports of collection system excursions onto sidewalks and streets. The Discharger responded to the inspection report by describing its routine collection system maintenance practices and programs addressing fats and grease and by pointing out that the number of apparent collection system problems reported was very high because all of its emergency hotline calls were included, whether or not they related to actual collection system problems. At the time, the Discharger was developing a new computer-based asset management system to allow it to better track and respond to calls.

   To follow up on the inspection and the Discharger's response, the Executive Officer issued an order requiring additional information pursuant to Water Code section 13267. This 13267 order required information on the extent and causes of excursions onto sidewalks and streets, and progress toward collection system improvements, asset management system development and implementation, and collection system cleaning and maintenance.

   In response, the Discharger submitted several reports, including a special study on combined sewer system excursions during the period from October 1, 2011, through September 30, 2012. Using its computer-based asset management system, it reported how many calls it received and how many of the calls related to collection system issues. Most (98 percent) of the reports related to private sewer laterals for which others were responsible. Nevertheless, the Discharger often resolved these problems on behalf of the other parties. The rest (about 70) related to the Discharger's collection system.

   The Discharger described specific maintenance activities, improvements, and repairs to its collections system; tracked the effectiveness of its fats, oil, and grease control program; and

described program improvements. Grease buildup is the main cause of the Discharger's sewer system blockages.

F. Planned Changes

The Discharger has started several infrastructure projects. In October 2012, the Discharger began the Southeast Plant Northside Facility Reliability Upgrade (Phase 2) project, which is an $11.5-million project to replace aging secondary sludge handlers and aeration-related electrical systems and to modify the secondary clarification process. The project is expected to be completed in August 2014. The Discharger began an Oxygen Generation Plant Replacement project in December 2012 and plans to complete this $12-million project in December 2013. The Discharger began dewatering facility corrosion repairs in August 2012, a $9.1-million project to address corrosion damage to concrete, the sludge piping network, and the electrical system at the sludge dewatering building. This project is expected to be completed in January 2014. The Discharger is also designing a project to begin in August 2013 to replace and relocate the sodium hypochlorite storage tanks for disinfection.

The Discharger's Sewer System Improvement Program is a three-phase, $6.9-billion effort over the next 20 years to address deficiencies, improve operational flexibility, provide seismic reliability, and ensure future compliance with anticipated environmental regulatory requirements. The program will address aging infrastructure and technologies at the treatment plants and increase the ability of the collection system to convey wastewater.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements in this Order are based on the requirements and authorities described below:

A. Legal Authorities

This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA, and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.

B. California Environmental Quality Act

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act, Public Resources Code division 13, chapter 3 (commencing with § 21100).

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, this Order is consistent with State Water Board Resolution No. 88-63, which established State policy that all waters, with certain exceptions,

should be considered suitable or potentially suitable for municipal or domestic supply. Because of the marine influence on San Francisco Bay, total dissolved solids levels exceed 3,000 mg/L; therefore, San Francisco Bay meets an exception to State Water Board Resolution No. 88-63.

Beneficial uses for the receiving waters of each Facility discharge point are listed below:

Table F-7. Basin Plan Beneficial Uses

Discharge Points	Receiving Water	Beneficial Uses
001, 002, 019, 043	Lower San Francisco Bay	Industrial Service Supply (IND) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
003, 004, 005, 006, 009, 010, 011, 013, 015, 017, 018	Central San Francisco Bay	Industrial Service Supply (IND) Industrial Process Supply (PROC) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
022, 023, 024, 025, 026, 027, 028	Mission Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
029, 030, 030A	Central Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
031, 031A, 032, 033, 035	Islais Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)

037, 038	India Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
040, 042	South Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
041	Yosemite Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2)

2. **Sediment Quality.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on September 16, 2008, and it became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. This Order implements the sediment quality objectives of this plan.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. U.S. EPA amended the CTR on February 13, 2001. These rules contain water quality criteria for priority pollutants.

4. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives, and provisions for chronic toxicity control. Requirements of this Order implement the SIP for dry weather discharges.

5. **Antidegradation Policy.** Federal regulations at 40 C.F.R. section 131.12 requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy through State Water Board Resolution 68-16, which is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing

water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Permitted discharges must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all applicable Endangered Species Act requirements.

8. **Combined Sewer Overflow Control Policy.** U.S. EPA's *Combined Sewer Overflow Control Policy* (59 Fed. Reg. 18688-18698, April 19, 1994). The policy establishes a national approach for controlling combined sewer discharges and overflows and calls for a two-phased process. During the first phase, dischargers operating combined sewer systems were required to implement the Nine Minimum Controls, which were to constitute CWA technology-based requirements as applied to combined sewer systems (best conventional pollutant control technology [BCT] and best available control technology economically achievable [BAT]). Dischargers were also required to develop Long-Term Control Plans based on their financial capabilities. During the second phase, dischargers were required to implement the Long-Term Control Plans, thus providing a basis for demonstrating or presuming attainment of water quality objectives protective of beneficial uses. This Order requires the Discharger to continue operating its combined sewer system in accordance with the Nine Minimum Controls and its Long-Term Control Plan.

D. Impaired Waters on CWA 303(d) List

In October 2011, U.S. EPA approved a revised list of impaired waters prepared pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Where it has not done so already, the Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list. TMDLs establish wasteload allocations for point sources and load allocations for non-point sources, and are established to achieve the water quality standards for the impaired waters.

Central and Lower San Francisco Bay are listed as impaired waters. The pollutants impairing Central San Francisco Bay are chlordane, DDT, dieldrin, dioxins and furans, exotic species, mercury, dioxin-like PCBs and PCBs, selenium, and trash. The pollutants impairing Lower San Francisco Bay are chlordane, DDT, dieldrin, exotic species, dioxins and furans, mercury, trash, and dioxin-like PCBs and PCBs. On February 12, 2008, U.S. EPA approved a TMDL for

mercury in San Francisco Bay. On March 29, 2010, U.S. EPA approved a TMDL for PCBs in San Francisco Bay. The TMDLs for mercury and PCBs are incorporated into the Basin Plan and apply to this discharge; however, mercury and PCBs discharges are not covered by this Order. Instead, they are regulated under NPDES Permit No. CA0038849.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of receiving waters.

A. Discharge Prohibitions

1. Prohibitions in this Order

a. Discharge Prohibition III.A (No discharge other than as described in this Order): This prohibition is based on 40 C.F.R. section 122.21(a) and Water Code section 13260, which require filing an application and Report of Waste Discharge before a discharge can occur. Discharges not described in the application and Report of Waste Discharge, and subsequently in this Order, are prohibited.

b. Discharge Prohibition III.B (Minimum initial dilution of 231:1): This Order is based on a modeled dilution ratio of 231:1 for the calculation of one or more effluent limitations reflecting available information regarding the dilution achieved at Discharge Point No. 001 (see section IV.C.4.a of this Fact Sheet). Therefore, this prohibition is necessary to ensure that the assumptions used to derive the dilution credit remain substantially the same so the limitations remain protective of water quality.

c. Discharge Prohibition III.C (No bypass of secondary treatment): This prohibition is based on 40 C.F.R. section 122.41(m) and U.S. EPA's *Combined Sewer Overflow Control Policy*. Bypass of secondary treatment is prohibited except during wet weather as defined in Attachment A or in accordance with 40 C.F.R. section §122.41(m) (see Attachment D section I.G.)

d. Discharge Prohibition III.D (No dry weather discharges at Discharge Point Nos. 002 through 043): This prohibition reflects the principle objective of U.S. EPA's *Combined Sewer overflow Control Policy* (i.e., to ensure that combined sewer discharges only result from wet weather and that such discharges only occur at specified locations). Dry weather discharges must receive full secondary treatment prior to discharge through Discharge Point No. 001.

e. Discharge Prohibition III.E (Average dry weather effluent flow not to exceed dry weather design capacity): This prohibition is based on the Southeast Plant's design

treatment capacity (i.e., the historic and tested reliability of the treatment plant). Exceeding the average dry weather flow design capacity could result in lowering the reliability of achieving compliance with water quality requirements.

This Order prohibits an average dry weather effluent flow greater than 85.4 MGD. The previous order prohibited an average dry weather flow greater than 84.5 MGD. That value was a typographical error. The prohibitions in earlier orders (e.g., Order No. R2-2002-0073) specified 85.4 MGD. Federal regulations allow correction of this error (40 C.F.R. § 122.63).

f. Discharge Prohibition III.F (No sewer overflows): Basin Plan Table 4-1, Discharge Prohibition 15, and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. Publicly owned treatment works must achieve secondary treatment at a minimum and any more stringent limitations necessary to meet water quality standards (33 U.S.C. § 1311[b][1][B and C]). A sanitary sewer or combined sewer overflow that results in the discharge of raw sewage or wastewater not meeting this Order's effluent limitations to surface waters is therefore prohibited under the CWA and the Basin Plan. This prohibition does not apply to combined sewer discharges explicitly authorized in this Order pursuant to U.S. EPA's *Combined Sewer Overflow Control Policy*.

2. Exception to Shallow Water and Dead-End Slough Discharge Prohibition

Basin Plan Table 4-1, Discharge Prohibition 1, prohibits discharges not receiving a minimum of 10:1 initial dilution and discharges to dead-end sloughs. Basin Plan section 4.2 provides for exceptions under certain circumstances:

- An inordinate burden would be placed on the Discharger relative to the beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means;
- A discharge is approved as part of a reclamation project;
- Net environmental benefits will be derived as a result of the discharge; or
- A discharge is approved as part of a groundwater cleanup project.

Discharges to Discharge Point Nos. 001 and 003 through 006 receive a minimum of at least 10:1 dilution[1]; therefore, they are not subject this discharge prohibition. During wet weather, this Order grants an exception for discharges to Discharge Point Nos. 002 and 009 through 043 for the following reasons:

a. Wet weather discharges to Discharge Point Nos. 002 and 009 through 043 occur as a result of the Discharger's efforts to maximize treatment of sanitary and industrial wastewater *and* stormwater. To eliminate all combined sewer discharges would place an inordinate burden on the Discharger, which has invested heavily in infrastructure that

[1] Dilution at Discharge Point No. 001 is discussed in section IV.C.4.a of this Fact Sheet. Discharge Point Nos. 003 through 006 are located off of Piers 33 and 35 and discharge at a depth of about 10 feet below mean low low water (MLLW). In August 1973, the Discharger completed a study that estimated dilution ratios to be at least 10:1 at each outfall when discharging at a maximum flow of 170 MGD.

captures and treats most combined wastewater and stormwater. Providing additional deepwater discharge capacity is unwarranted for the relatively small portion of the combined wastewater not discharged to deep water. Such a burden would be wholly disproportional relative to the beneficial uses protected because this Order's requirements are sufficient to protect beneficial uses.

b. An equivalent level of environmental protection has been achieved because Provision VI.C.5 specifies controls that ensure the reliability of the Discharger's system in maximizing treatment and minimizing discharges not receiving at least 10:1 initial dilution. Combined sewer discharges at Discharge Point Nos. 009 through 043 receive equivalent-to-primary treatment, but before any combined sewer discharges occur, the Discharger optimizes discharges at Discharge Point Nos. 001 through 006. Discharges to Discharge Point Nos. 001 and 003 through 006 receive at least 10:1 dilution. When Discharge Point No. 001 (the Pier 80 deepwater outfall) is at capacity, the Discharger redirects only its highest quality effluent (secondary-treated wastewater) to Discharge Point No. 002.

Furthermore, in 1999 the Discharger took steps to enhance San Francisco Bay's beneficial uses by contributing $1 million to the Port of San Francisco to restore a 25-acre wetland at Heron's Head Park (Pier 98). Enhancing beneficial uses in this way provides environmental protection equivalent to providing at least 10:1 dilution for additional flows.

c. Net environmental benefits result from the operation of a combined sewer system. The system removes many pollutants in urban runoff, which elsewhere in the Region are discharged through stormwater outfalls with little or no treatment. For example, the system removes almost 2,000 tons, or 84 percent, of suspended sediment from the stormwater component of its influent each year (*Special Study Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities*, June 29, 2012).

B. Conventional and Non-Conventional Pollutant Effluent Limitations

1. Scope and Authority

a. Dry Weather Discharges. CWA section 301(b) and 40 C.F.R. section 122.44 require that permits include conditions meeting technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet water quality standards. The dry weather discharges authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. section 133 as summarized below. In addition, the 30-day average percent removal for biochemical oxygen demand (BOD_5) (or carbonaceous biochemical oxygen demand, $CBOD_5$) and total suspended solids (TSS), by concentration, is not to be less than 85 percent. The Basin Plan contains additional requirements for certain pollutants.

Table F-8. Secondary Treatment Requirements

Parameter	Monthly Average	Weekly Average
BOD_5	30 mg/L	45 mg/L
$CBOD_5$ [1]	25 mg/L	40 mg/L
TSS	30 mg/L	45 mg/L
pH	6.0 – 9.0 standard units [2]	

Footnotes:

[1] $CBOD_5$ effluent limitations may be substituted for BOD_5 limitations.

[2] The pH is to be between 6.0 and 9.0 unless inorganic chemicals are added during treatment or industrial sources cause the pH to be less than 6.0 or greater than 9.0.

b. Wet Weather Discharges. Discharges from combined sewer systems are point sources subject to NPDES permit requirements; however, such wet weather discharges are not subject to the Secondary Treatment Standards. The *Combined Sewer Overflow Control Policy* establishes technology-based requirements for combined sewer systems based on 40 C.F.R. section 125.3. The Policy requires the Discharger to implement Nine Minimum Controls, which represent the best conventional technology and best available technology economically achievable. Provision VI.C.5.b of this Order contains these requirements. This Order contains total residual chlorine and enterococcus limits for disinfected effluent from Discharge Point Nos. 001 through 006 to ensure proper operations and maintenance consistent with the Nine Minimum Controls.

2. Effluent Limitations

a. Dry Weather Discharges (Discharge Point No. 001)

i. BOD_5 and TSS. The dry weather BOD_5 and TSS effluent limitations, including the 85 percent removal requirements, are based on the Secondary Treatment Standards and Basin Plan Table 4-2.

ii. Oil and Grease. The oil and grease effluent limitations are based on Basin Plan Table 4-2.

iii. pH. The pH effluent limitations are based on the Secondary Treatment Standards and Basin Plan Table 4-2.

iv. Total Residual Chlorine. The total residual chlorine effluent limitation is based on Basin Plan Table 4-2. The allowance for determining false positives when using continuous devices is based on the fact that continuous instruments occasionally have anomalous spikes, and it is chemically improbable to have free chlorine present in the presence of sodium bisulfite.

v. Enterococcus. Basin Plan Table 4-2A requires the enterococcus effluent limitation for discharges to receiving waters with the water contact recreation beneficial use.

vi. Fecal Coliform. Basin Plan Table 4-2A requires total coliform effluent limitations for discharges to receiving waters with the shellfish harvesting beneficial use, but Basin Plan Table 4-2A, footnote c, allows substituting fecal coliform limitations for

total coliform limitations provided that the substitution will not result in unacceptable adverse impacts on beneficial uses. This Order contains the following fecal coliform effluent limits:

- The median fecal coliform density in any calendar month is not to exceed 500 MPN/100 mL); and
- no more than 10 percent of the samples in any calendar month may contain a fecal coliform density equal to or greater than 1,100 MPN/100 mL.

The Fact Sheet for Regional Water Board Order No. 94-149 attributes these limits to "recommendations for the Department of Health Services (Memorandum from Don Womeldorf, Chief Environmental Management Branch to James Baetge SWRCB dated Octover 24, 1990) and the initial dilution achieved at the Pier 80 Outfall."

These limits will not result in unacceptable adverse impacts on beneficial uses, including water contact recreation and shellfish harvesting. The enterococcus limit discussed above adequately protects water contact recreation. As for shellfish harvesting, Southeast Plant effluent is diluted at least 50:1 at the Pier 80 outfall (*Dilution Model for the San Francisco Southeast Treatment Plant Bay Outfall [Pier 80]*, December 6, 2007) and the nearest shellfish beds are near Candlestick Point, more than three miles away (*San Francisco Bay Subtidal Habitat Goals Report*, 2010). Basin Plan Table 3-1 contains a 30-day median fecal coliform objective of 14 MPN/100 mL and a 90th percentile fecal coliform objective of 43 MPN/100 mL to protect shellfish harvesting. Therefore, accounting for mixing and dilution, the fecal coliform limits in this Order will protect shellfish harvesting. Moreover, in April 1993, the Discharger decreased its chlorine residual for a time and observed that total coliform and fecal coliform levels near Candlestick Point remained equal to San Francisco Bay background levels ("NPDES Limits for Bacteria," *Water Environment & Technology*, Vol. 8, August 1996, pp 69-73). Other Lower San Francisco Bay dischargers have conducted similar receiving water impact studies and found no relationship between effluent and shoreline fecal coliform densities (City of San Mateo, November 1997; South Bayside System Authority, January 1998). Apparently, other fecal coliform sources (e.g., birds, wildlife, urban runoff) more directly affect shoreline fecal coliform levels. The studies evaluated a range of effluent discharges that included fecal coliform densities considerably higher than those allowed by this Order.

The Monitoring and Reporting Program requires weekly monitoring, but samples may be collected more frequently. The 10 percent requirement will be interpreted as follows. If up to nine samples are collected in a calendar month, a single sample with a fecal coliform density equal to or greater than 1,100 MPN/100 mL would violate the 10 percent limit; if 10 to 19 samples are collected, two samples at or above 1,100 MPN/100 mL would violate the limit; if 20 to 29 samples are collected, three samples at or above 1,100 MPN/100 mL would violate the limit; and if 30 or 31 samples are collected, four samples at or above 1,100 MPN/100 mL would violate the limit.

b. Wet Weather Discharges (Discharge Point Nos. 001 through 006)

i. Total Residual Chlorine. The total residual chlorine effluent limitation is based on Basin Plan Table 4-2, as guidance, to ensure that Southeast Plant and North Point Facility treatment, including disinfection, is conducted in a manner consistent with proper operations and maintenance as required by the Nine Minimum Controls. The allowance for determining false positives when using continuous devices accounts for the fact that continuous instruments occasionally have anomalous spikes, and it is chemically improbable to have free chlorine present in the presence of sodium bisulfite.

ii. Enterococcus. To ensure that Southeast Plant and North Point Facility disinfection is conducted in a manner consistent with proper operations and maintenance, as required by the Nine Minimum Controls, this Order contains an enterococcus effluent limitation. Disinfection performance is to be evaluated using a monthly geometric mean enterococcus limit of 35 MPN/100 mL, chosen based on the receiving water quality objective for water contact recreation in Basin Plan Table 3-1.

This Order does not retain the previous order's single-sample maximum enterococcus limit because, in the context of using single-sample maxima for enterococcus, U.S. EPA states in part:

> Other than in the beach notification and closure decision context, the geometrice mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based. (69 Fed. Reg. 67224, November 16, 2004.)

This change is not subject to anti-backsliding requirements because the two limits reflect different averaging periods and both are consistent with Basin Plan Table 3-1 water quality objectives.

This Order also does not retain the previous order's fecal coliform limits. The enterococcus limit is sufficient to evaluate treatment performance. Anti-backsliding requirements do not apply because this Order replaces the fecal coliform limits with a new enterococcus limit; therefore, a direct comparison is impossible.

C. Toxic Pollutant Effluent Limitations

1. Scope and Authority

For toxic pollutants, this Order contains water quality-based effluent limitations (WQBELs) that implement water quality objectives that protect beneficial uses. CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than federal technology-based requirements where necessary to achieve applicable water quality standards. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or

contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs must be established using (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting a narrative criterion, supplemented with relevant information (40 C.F.R. § 122.44[d][1][vi]). The process for determining reasonable potential and calculating WQBELs is intended to achieve applicable water quality objectives and criteria and protect designated uses of receiving waters as specified in the Basin Plan.

During dry weather, this Order imposes numeric effluent limitations at Discharge Point No. 001 for toxic pollutants with reasonable potential to cause or contribute to exceedances of water quality standards. During wet weather, this Order imposes narrative effluent limitations for toxic pollutants, not numeric limitations. In accordance with the *Combined Sewer Overflow Control Policy*, this Order requires the Discharger to implement its Long-Term Control Plan to control combined sewer discharges and overflows. The plan calls for meeting CWA water quality-based requirements by providing a minimum level of treatment. The *Combined Sewer Overflow Control Policy* presumes that CWA water quality-based requirements will be met if the Discharger implements at least primary clarification of at least 85 percent of collected wastewater (unless data indicate otherwise). U.S. EPA describes this "presumption approach" as follows:

> A program that meets any of the criteria listed below would be presumed to provide an adequate level of control to meet the water quality-based requirements of the CWA, provided the permitting authority determines that such presumption is reasonable in light of the data and analysis conducted in the characterization, monitoring, and modeling of the system and the consideration of sensitive areas described above. These criteria are provided because data and modeling of wet weather events often do not give a clear picture of the level of [combined sewer overflow] controls necessary to protect [water quality standards].
>
> i. No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a CSS (Combined Sewer System) as the result of a precipitation event that does not receive the minimum treatment specified below; or
>
> ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the Combined Sewer System during precipitation events on a system-wide annual average basis; or
>
> iii. The elimination or removal of no less than the mass of the pollutants, identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort, for the volumes that would be eliminated or captured for treatment under paragraph ii above.

> Combined sewer overflows remaining after implementation of the nine minimum controls and within the criteria specified at [i or ii], should receive a minimum of:
>
> - Primary clarification (Removal of floatables and settleable solids may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification.);
>
> - Solids and floatables disposal; and
>
> - Disinfection of effluent, if necessary, to meet [water quality standards], protect designated uses and protect human health, including removal of harmful disinfection chemical residuals, where necessary."

The Discharger's Long-Term Control Plan exceeds the specifications for the presumption approach. The Discharger's system is designed to capture 100 percent of combined wastewater within the storage/transport boxes and to provide treatment consisting of floatables and settleable solids removal. Therefore, no untreated combined sewer overflows occur (combined sewer discharges receive equivalent-to-primary treatment). Provision VI.C.5.c of this Order requires the Discharger to continue implementing its Long-Term Control Plan.

2. Beneficial Uses and Water Quality Criteria and Objectives

Discharge Point No. 001 discharges to Lower San Francisco Bay. Section III.C.1, above, identifies the beneficial uses of Lower San Francisco Bay. Water quality criteria and objectives to protect these beneficial uses are described below:

a. Basin Plan Objectives. The Basin Plan specifies numeric water quality objectives for 10 priority pollutants and narrative water quality objectives for toxicity and bioaccumulation. The narrative toxicity objective states, "All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The narrative bioaccumulation objective states, "Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

b. CTR Criteria. The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of "water and organisms" and others are for consumption of "organisms only." The criteria applicable to "organisms only" apply to Lower San Francisco Bay because it is not a source of drinking water.

c. NTR Criteria. The NTR establishes numeric aquatic life and human health criteria for a number of toxic pollutants for San Francisco Bay waters upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. The NTR criteria apply to Lower San Francisco Bay.

d. Sediment Quality Objectives. The *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The policy requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

e. Receiving Water Salinity. Basin Plan section 4.6.2 (like the CTR and NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water are to be considered in determining the applicable water quality objectives. Freshwater criteria apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities between these two categories, or tidally-influenced freshwaters that support estuarine beneficial uses, the water quality objectives are the lower of the salt or freshwater objectives (the latter calculated based on ambient hardness) for each substance.

Lower San Francisco Bay is a salt water environment based on salinity data generated through the Regional Monitoring Program (RMP). Salinity data collected at the Alameda (BB70) sampling location between 1993 and 2001 indicate that the salinity was greater than 10 ppt in 100 percent of the samples. Lower San Francisco Bay is therefore classified as saltwater, and the reasonable potential analysis and WQBELs are based on saltwater water quality criteria and objectives.

f. Site-Specific Metals Translators. Effluent limitations for metals must be expressed as total recoverable metal (40 C.F.R. § 122.45[c]). Since the water quality objectives for metals are typically expressed as dissolved metal, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR contains default translators; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon may affect the form of metal (dissolved, non-filterable, or otherwise) present and therefore available to cause toxicity. In general, dissolved metals are more available and more toxic to aquatic life than other forms. Site-specific translators can account for site-specific conditions, thereby preventing overly stringent or under-protective water quality objectives. For copper, Basin Plan Table 7.2.1-2 contains site-specific translators for deep water discharges to Lower San Francisco Bay: 0.73 and 0.87 (monthly and daily). For nickel, this Order uses site-specific translators the Clean Estuary Partnership developed, as set forth in *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* report (March 2005): 0.65 and 0.85 (monthly and daily). For silver, this Order uses a site-specific translator based on RMP data collected from 1993 through 2001 at the Alameda sampling station (BB70): 0.66.

3. Need for Water Quality-Based Effluent Limitations (Reasonable Potential Analysis)

Assessing whether a pollutant has reasonable potential to exceed a water quality objective is the fundamental step in determining whether a WQBEL is required.

a. Methodology. For dry weather discharges, SIP section 1.3 sets forth the methodogy used for this Order for assessing whether a pollutant has reasonable potential to exceed a water quality objective. The analysis begins with identifying the maximum effluent concentration (MEC) observed for each pollutant based on available effluent concentration data and the ambient background concentration (B). SIP section 1.4.3 states that ambient background concentrations are either the maximum ambient concentration observed or, for water quality objectives intended to protect human health, the arithmetic mean of observed concentrations.There are three triggers in determining reasonable potential:

i. Trigger 1 is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective (MEC $\geq$ water quality objective).

ii. Trigger 2 is activated if the ambient background concentration observed in the receiving water is greater than the water quality objective (B > water quality objective) *and* the pollutant is detected in any effluent sample.

iii. Trigger 3 is activated if a review of other information indicates that a WQBEL is needed to protect beneficial uses.

b. Effluent Data. The reasonable potential analysis for this Order is based on effluent monitoring data the Discharger collected from April 2008 through September 2012. The copper data were collected from October 2009 through September 2012 because these more recent three years of data better represent current discharge conditions.

c. Ambient Background Data. The reasonable potential analysis for this Order is based on RMP data collected at the Yerba Buena Island station (BC10) from 1993 through 2011, and additional Bay Area Clean Water Agencies data from *San Francisco Bay Ambient Water Monitoring Interim Report* (2003) and *Ambient Water Monitoring: Final CTR Sampling Update* (2004). These reports contain monitoring results from 2002 and 2003 for priority pollutants the RMP did not monitor at the time. For ammonia, the ambient concentration at the RMP station nearest to the discharge point, the Alameda RMP station (BB70), was used because, as described in section IV.C.4.a.iii of this Fact Sheet, this Order grants full dilution credit for ammonia.

d. Reasonable Potential Analysis for Toxic Pollutants. The maximum effluent concentrations, most stringent applicable water quality criteria and objectives, and ambient background concentrations used in the analysis are presented in the following table, along with the reasonable potential analysis results (yes or no) for each pollutant. Reasonable potential was not determined for all pollutants because there are not water quality objectives for all pollutants, and monitoring data are unavailable for others. The pollutants that exhibit reasonable potential are copper, cyanide, dioxin-TEQ, 1,2-diphenylhydrazine, and total ammonia.

Table F-9. Reasonable Potential Analysis

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
1	Antimony	4,300	0.71	1.8	No
2	Arsenic	36	3.7	2.46	No
3	Beryllium	No Criteria	0.29	0.22	Ud
4	Cadmium	9.36	1.3	0.13	No
5a	Chromium (III)	No Criteria	3.7	4.4	No
5b	Chromium (VI)	50	1.4	4.4	No
6	**Copper**	**8.2**	**13**	**2.5**	**Yes**
7	Lead	8.5	1.6	0.80	No
8	Mercury (303(d) listed) [4]	---	---	---	---
9	Nickel	13	5.1	3.7	No
10	Selenium (303(d) listed)	5	1.2	0.39	No
11	Silver	2.9	2.6	0.052	No
12	Thallium	6.3	0.18	0.21	No
13	Zinc	86	55	5.1	No
14	**Cyanide**	**2.9**	**9.5**	**< 0.4**	**Yes**
15	Asbestos	No Criteria	Unavailable	Unavailable	Ud
16	2,3,7,8-TCDD (303(d) listed)	1.40×10^{-8}	$< 3.5 \times 10^{-7}$	8.2×10^{-9}	No
	Dioxin-TEQ (303(d) listed)	**1.40×10^{-8}**	**2.2×10^{-9}**	**5.3×10^{-8}**	**Yes**
17	Acrolein	780	< 1.0	< 0.5	No
18	Acrylonitrile	0.66	< 0.80	0.03	No
19	Benzene	71	< 0.051	< 0.05	No
20	Bromoform	360	< 0.078	< 0.5	No
21	Carbon Tetrachloride	4.4	< 0.068	0.06	No
22	Chlorobenzene	21,000	< 0.052	< 0.5	No
23	Chlorodibromomethane	34	0.48	< 0.05	No
24	Chloroethane	No Criteria	1.1	< 0.5	Ud
25	2-Chloroethylvinyl ether	No Criteria	< 0.095	< 0.5	Ud
26	Chloroform	No Criteria	11	< 0.5	Ud
27	Dichlorobromomethane	46	1.1	< 0.05	No
28	1,1-Dichloroethane	No Criteria	< 0.047	< 0.05	Ud
29	1,2-Dichloroethane	99	< 0.052	0.04	No
30	1,1-Dichloroethylene	3.2	< 0.038	< 0.5	No
31	1,2-Dichloropropane	39	< 0.038	< 0.05	No
32	1,3-Dichloropropylene	1,700	< 0.054	< 0.5	No
33	Ethylbenzene	29,000	0.11	< 0.5	No
34	Methyl Bromide	4,000	< 0.067	< 0.5	No
35	Methyl Chloride	No Criteria	1.1	< 0.5	Ud
36	Methylene Chloride	1,600	3.3	22	No
37	1,1,2,2-Tetrachloroethane	11	< 0.064	< 0.05	No
38	Tetrachloroethylene	8.85	0.79	< 0.05	No
39	Toluene	200,000	1.5	< 0.3	No
40	1,2-Trans-Dichloroethylene	140,000	< 0.062	< 0.5	No
41	1,1,1-Trichloroethane	No Criteria	< 0.064	< 0.5	Ud
42	1,1,2-Trichloroethane	42	< 0.053	< 0.05	No
43	Trichloroethylene	81	0.25	< 0.5	No
44	Vinyl Chloride	525	1.2	< 0.5	No
45	2-Chlorophenol	400	< 0.15	< 1.2	No
46	2,4-Dichlorophenol	790	0.75	< 1.3	No
47	2,4-Dimethylphenol	2,300	< 0.22	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	765	< 0.33	< 1.2	No
49	2,4-Dinitrophenol	14,000	< 0.23	< 0.7	No

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
50	2-Nitrophenol	No Criteria	< 0.20	< 1.3	Ud
51	4-Nitrophenol	No Criteria	< 0.27	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	No Criteria	< 0.21	< 1.1	Ud
53	Pentachlorophenol	7.9	< 0.23	< 1	No
54	Phenol	4,600,000	< 0.20	< 1.3	No
55	2,4,6-Trichlorophenol	6.5	0.94	< 1.3	No
56	Acenaphthene	2,700	0.034	0.0019	No
57	Acenaphthylene	No Criteria	< 0.044	0.0013	Ud
58	Anthracene	110,000	0.0011	0.00059	No
59	Benzidine	0.00054	< 0.42	< 0.0015	No
60	Benzo(a)Anthracene	0.049	0.0034	0.0053	No
61	Benzo(a)Pyrene	0.049	< 0.0020	0.0033	No
62	Benzo(b)Fluoranthene	0.049	0.0024	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	< 0.0016	0.0045	Ud
64	Benzo(k)Fluoranthene	0.049	< 0.0016	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	< 0.24	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	1.4	< 0.19	< 0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	< 0.19	Unavailable	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	1.7	< 0.7	No
69	4-Bromophenyl Phenyl Ether	No Criteria	< 0.12	< 0.23	Ud
70	Butylbenzyl Phthalate	5,200	0.47	0.0056	No
71	2-Chloronaphthalene	4,300	< 0.20	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	< 0.24	< 0.3	Ud
73	Chrysene	0.049	0.0018	0.0028	No
74	Dibenzo(a,h)Anthracene	0.049	< 0.0010	0.00064	No
75	1,2-Dichlorobenzene	17,000	0.57	< 0.3	No
76	1,3-Dichlorobenzene	2,600	0.46	< 0.3	No
77	1,4-Dichlorobenzene	2,600	0.66	< 0.3	No
78	3,3 Dichlorobenzidine	0.077	< 0.41	< 0.001	No
79	Diethyl Phthalate	120,000	0.35	< 0.21	No
80	Dimethyl Phthalate	2,900,000	< 0.29	< 0.21	No
81	Di-n-Butyl Phthalate	12,000	1.0	0.016	No
82	2,4-Dinitrotoluene	9.1	< 0.23	< 0.27	No
83	2,6-Dinitrotoluene	No Criteria	< 0.16	< 0.29	Ud
84	Di-n-Octyl Phthalate	No Criteria	< 0.36	< 0.38	Ud
85	**1,2-Diphenylhydrazine**	**0.54**	**1.1**	**0.0037**	**Yes**
86	Fluoranthene	370	< 0.0092	0.011	No
87	Fluorene	14,000	0.0052	0.00208	No
88	Hexachlorobenzene	0.00077	< 0.15	0.000022	No
89	Hexachlorobutadiene	50	< 0.15	< 0.3	No
90	Hexachlorocyclopentadiene	17,000	< 0.11	< 0.3	No
91	Hexachloroethane	8.9	< 0.13	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	0.049	< 0.0020	0.0040	No
93	Isophorone	600	< 0.23	< 0.3	No
94	Naphthalene	No Criteria	< 0.017	0.013	Ud
95	Nitrobenzene	1,900	< 0.20	< 0.25	No
96	N-Nitrosodimethylamine	8.1	< 0.060	< 0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	< 0.21	< 0.001	No
98	N-Nitrosodiphenylamine	16	< 0.090	< 0.001	No
99	Phenanthrene	No Criteria	0.029	0.0095	Ud
100	Pyrene	11,000	0.011	0.019	No
101	1,2,4-Trichlorobenzene	No Criteria	< 0.20	< 0.3	Ud

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
102	Aldrin	0.00014	< 0.00075	0.0000028	No
103	Alpha-BHC	0.013	< 0.00059	0.00050	No
104	Beta-BHC	0.046	< 0.00040	0.00041	No
105	Gamma-BHC	0.063	< 0.00050	0.00070	No
106	Delta-BHC	No Criteria	< 0.00051	0.000053	Ud
107	Chlordane (303(d) listed)	0.00059	< 0.0090	0.00018	No
108	4,4'-DDT (303(d) listed)	0.00059	< 0.00093	0.00017	No
109	4,4'-DDE (linked to DDT)	0.00059	< 0.00038	0.00069	No
110	4,4'-DDD	0.00084	< 0.0021	0.00031	No
111	Dieldrin (303d listed)	0.00014	< 0.00056	0.00026	No
112	Alpha-Endosulfan	0.0087	< 0.00048	0.000031	No
113	beta-Endosulfan	0.0087	< 0.00071	0.000069	No
114	Endosulfan Sulfate	240	< 0.0028	0.000082	No
115	Endrin	0.0023	< 0.00091	0.00004	No
116	Endrin Aldehyde	0.81	< 0.00089	Unavailable	No
117	Heptachlor	0.00021	< 0.00099	0.000019	No
118	Heptachlor Epoxide	0.00011	< 0.00050	0.000094	No
119-125	PCBs sum (303(d) listed) [4]	---	---	---	---
126	Toxaphene	0.0002	< 0.032	Unavailable	No
	Tributyltin	0.0074	< 0.00036	Unavailable	No
	Total PAHs	15	Unavailable	0.013	Ud
	Total Ammonia [5]	**1.1**	**42**	**0.22**	**Yes**

Footnotes:

[1] The maximum effluent concentration and ambient background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[2] The maximum effluent concentration or ambient background concentration is "Unavailable" when there are no monitoring data for the constituent.

[3] RPA Results = Yes, if MEC ≥ WQC, B > WQC and MEC is detected, or Trigger 3
= No, if MEC and B are < WQC or all effluent data are undetected
= Undetermined (Ud), if no criteria have been promulgated or data are insufficient.

[4] SIP section 1.3 excludes from its reasonable potential analysis procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated by NPDES Permit No. CA0038849, which implements the San Francisco Bay Mercury and PCBs TMDLs.

[5] Units for total ammonia are milligrams per liter as nitrogen.

e. Reasonable Potential Analysis for Sediment Quality. Pollutants in some receiving water sediments may be present in quantities that alone or in combination are toxic to benthic communities. Efforts are underway to identify stressors causing such conditions. However, to date there is no evidence directly linking compromised sediment conditions to the discharges subject to this Order; therefore, the Regional Water Board cannot draw a conclusion about reasonable potential for these discharges to cause or contribute to exceedances of the sediment quality objectives. Nevertheless, the Discharger continues to participate in the RMP, which monitors San Francisco Bay sediment and seeks to identify stressors responsible for degraded sediment quality. Thus far, the monitoring has provided only limited information about potential stressors and sediment transport. The Regional Water Board is exploring options for obtaining additional information that may inform future analyses.

f. Constituents with limited data. In some cases, reasonable potential cannot be determined because effluent data are limited or ambient background concentrations are unavailable. Provision VI.C.2 of the Order requires the Discharger to continue monitoring for these constituents in its effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether numeric effluent limitations are necessary.

g. Pollutants with No Reasonable Potential. This Order does not contain WQBELs for constituents that do not demonstrate reasonable potential; however, Provision VI.C.2 of the Order still requires monitoring for those pollutants. If concentrations are found to have increased significantly, Provision VI.C.2 of the Order requires the Discharger to investigate the sources of the increases and implement remedial measures if the increases pose a threat to receiving water quality.

4. Water Quality-Based Effluent Limitations

For dry weather discharges, WQBELs were developed for the pollutants determined to have reasonable potential to cause or contribute to exceedances of water quality objectives. The WQBELs are based on the procedures specified in SIP section 1.4.

a. Dilution Credits. SIP section 1.4.2 allows dilution credits under certain circumstances. The Discharger submitted a dilution study titled *Dilution Model for the San Francisco Southeast Treatment Plant Bay Outfall (Pier 80)*, dated December 6, 2007. The study contains estimates of initial dilution based on the UM3 model as implemented with the U.S. EPA-supported Visual PLUMES modeling package. The study used the average dry weather flow, 62 MGD, to estmate the initial dilution representing chronic (long-term average) conditions, and the 95th percentile of dry weather flows, 72 MGD, to calculate the initial dilution representing acute (short-term) conditions. Estimated initial dilution ratios are 231:1 (230 parts ambient water to one part effluent) at 62 MGD and 51:1 at 72 MGD.

i. Bioaccumulative Pollutants. For certain bioaccumulative pollutants, dilution credit is significantly restricted or denied. Specifically, these pollutants include dioxin and furan compounds, which appear on the CWA section 303(d) list for Lower San Francisco Bay because, based on available data on the concentrations of these pollutants in aquatic organisms, sediment, and the water column, they impair San Francisco Bay beneficial uses. The following factors suggest insufficient assimilative capacity in San Francisco Bay for these pollutants.

Tissue samples taken from San Francisco Bay fish show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, May 1997). The results of a 1994 San Francisco Bay pilot study, presented in *Contaminated Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994) also show elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment (OEHHA) completed a preliminary review of the data in the 1994 report and in December 1994 issued an interim consumption advisory covering certain fish species in San Francisco Bay due to the levels of some of these pollutants.

OEHHA updated this advisory in a May 2011 report, *Health Advisory and Safe Eating Guidelines for San Francisco Bay Fish and Shellfish*, which still suggests insufficient assimilative capacity in San Francisco Bay for 303(d)-listed pollutants. Therefore, dilution credits are denied for bioaccumulative pollutants on the 303(d) list for which data are lacking on sources and significant uncertainty exists about how different sources contribute to bioaccumulation.

ii. Non-Bioaccumulative Pollutants (except ammonia). For non-bioaccumulative pollutants (except ammonia), a conservative dilution credit of 10:1 (D = 9) has been assigned. The 10:1 dilution credit is based, in part, on Basin Plan Prohibition 1 (Table 4-1), which prohibits discharges with less than 10:1 dilution. SIP section 1.4.2 allows for limiting the dilution credit. The dilution credit is limited for the following reasons:

(a) San Francisco Bay is a complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. SIP section 1.4.3 allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis. A water body-by-water body approach is taken here due to inherent uncertainties in characterizing ambient background conditions in a complex estuarine system on a discharge-by-discharge basis.

(b) Because of the complex hydrology of San Francisco Bay, there are uncertainties in accurately determining an appropriate mixing zone. The models used to predict dilution do not consider the three dimensional nature of San Francisco Bay currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean salt water enters San Francisco Bay on a twice-daily tidal cycle, generally beneath the warmer fresh water that flows seaward. When these waters mix and interact, complex circulation patterns occur due to the varying densities of the fresh and ocean waters. The complex patterns occur throughout San Francisco Bay, but are most prevalent in San Pablo Bay, Carquinez Strait, and Suisun Bay. The locations of this mixing and interaction change, depending on the strength of each tide. Additionally, sediment loads from the Central Valley change on a long-term basis, affecting the depth of different parts of San Francisco Bay, resulting in alteration of flow patterns, mixing, and dilution at the outfall.

For non-bioaccumultive pollutants (except ammonia), the Yerba Buena Island RMP monitoring station (BC10), relative to other RMP stations, fits SIP guidance for establishing background conditions. SIP section 1.4.3 requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Because the WQBELs for non-bioaccumultive pollutants (except ammonia) are based on a restricted dilution credit, water quality data from the Yerba Buena Island monitoring station best represents the water that will mix with the discharge.

iii. Ammonia. For ammonia, a conservative estimate of actual initial dilution was used to calculate the effluent limitations. This is justified because ammonia, a non-

persistent pollutant, quickly disperses and degrades to a non-toxic state, and cumulative toxicity is unlikely. The 231:1 dilution ratio is appropriate for calculating limits based on the chronic water quality objective because that objective is an annual median; the dilution ratio associtated with the long-term average flow best represents long-term (chronic) conditions. The 51:1 dilution ratio is appropriate for calculating limits based on the acute water quality objective because that objective is an absolute maximum; the dilution associated with the maximum flow best represents short-term (acute) conditions.

For ammonia, the Alameda RMP monitoring station (BB70), relative to other RMP stations, fits SIP guidance for establishing background conditions. SIP section 1.4.3 requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Because the ammonia WQBELs are based on actual dilution at the edge of the initial mixing zone, data from the Alameda RMP station best represents the water at the edge of the initial mixing zone.

b. WQBEL Development. For those pollutants with reasonable potential, average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) were developed as explained below:

i. Copper

(a) Water Quality Objectives. Basin Plan Table 3-3A contains chronic and acute marine water quality objectives for copper of 6.0 and 9.4 µg/L (site-specific objectives for San Francisco Bay), expressed as dissolved metal and accounting for a Water Effects Ratio of 2.4. Converting these water quality objectives to total recoverable metal using the site-specific translators of 0.73 (chronic) and 0.87 (acute) results in water quality criteria of 8.2 µg/L (chronic) and 10.8 µg/L (acute).

(b) Reasonable Potential Analysis. This Order establishes copper WQBELs because the maximum effluent concentration (13 µg/L) exceeds the governing water quality objective (8.2 µg/L), demonstrating reasonable potential by Trigger 1, and because Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

(c) WQBELs. Copper WQBELs, calculated according to SIP procedures with an effluent data coefficient of variation of 0.28 and a dilution credit of D = 9 (dilution ratio = 10:1), are an AMEL of 53 µg/L and an MDEL of 76 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's copper WQBELs are the same as those in the previous order.

ii. Cyanide

(a) Water Quality Objectives. Basin Plan Table 3-3C contains chronic and acute marine water quality objectives for cyanide of 2.9 µg/L and 9.4 µg/L (site-specific objectives for San Francisco Bay).

(b) Reasonable Potential Analysis. This Order establishes cyanide WQBELs because the maximum effluent concentration (9.5 µg/L) exceeds the governing water quality objective (2.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Cyanide WQBELs, calculated according to SIP procedures with an effluent data coefficient of variation of 0.80 and a dilution credit of D = 9, are an AMEL of 20 µg/L and an MDEL of 45 µg/L. This MDEL is less stringent than the one in the previous order (43 µg/L); therefore, this Order retains the previous MDEL to avoid backsliding.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's cyanide WQBELs are at least as stringent as those in the previous order.

iii. Dioxin-TEQ

(a) Water Quality Objective. The Basin Plan narrative water quality objective for bioaccumulative substances states, "Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation water quality objective applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation water quality objective is not being met. U.S. EPA has therefore placed Lower San Francisco Bay on its 303(d)-list of receiving waters where water quality objectives are not being met after imposition of applicable technology-based requirements.

When the CTR was promulgated, U.S. EPA stated its support of the regulation of dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs). U.S. EPA stated, "For California waters, if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme" (65 Fed. Reg. 31695-31696, May 18, 2000). This Order uses a TEQ scheme based on a set of toxicity equivalency factors (TEFs) the World Health Organization developed in 1998, and a set of bioaccumulation equivalency factors (BEFs) U.S. EPA developed for the Great Lakes region (40 C.F.R. part 132, Appendix F) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD). Although the 1998 World Health Organization scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's TEQ scheme.

The CTR has established a specific water quality criterion for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

The CTR establishes a numeric water quality objective for 2,3,7,8-TCDD of 1.4×10^{-8} µg/L for the protection of human health when aquatic organisms are consumed. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion.

(b) Reasonable Potential Analysis. TEFs and BEFs were used to express measured concentrations of 16 dioxin congeners in effluent and background samples as equivalent 2,3,7,8-TCDD concentrations. For each sample, the sum of these equivalent concentrations is the dioxin-TEQ concentration. This Order establishes dioxin-TEQ WQBELs because the ambient background receiving water dioxin-TEQ concentration (5.3×10^{-8} µg/L) exceeds the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{8} µg/L) and dioxin-TEQ was detected in the effluent, demonstrating reasonable potential by Trigger 2.

(c) WQBELs. Dioxin-TEQ WQBELs, calculated according to SIP procedures with a default coefficient of variation of 0.60 and no dilution credit, are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L.

(d) Anti-backsliding. The previous order contained an annual mass-based dioxin-TEQ effluent limit based on a dry weather flow of 85.4 MGD and a monthly average effluent concentration of 1.4×10^{-8} µg/L. Anti-backsliding requirements are satisfied because this Order's dioxin-TEQ WQBELs are as stringent as the previous mass-based limitation (the new AMEL is the same as the concentration used to derive the prevous mass-based limit).

iv. 1,2-Diphenylhydrazine

(a) Water Quality Objectives. The CTR contains a human health water quality criterion for 1,2-diphenylhydrazine of 0.54 µg/L when organisms only (not water) are consumed from the receiving water.

(b) Reasonable Potential Analysis. This Order establishes WQBELs for 1,2-diphenylhydrazine because the maximum effluent concentration (1.1 µg/L) exceeds the governing water quality objective (0.54 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for 1,2-diphenylhydrazine, calculated according to SIP procedures with a default coefficient of variation of 0.60 and a dilution credit of D = 9, are an AMEL of 5.4 µg/L and an MDEL of 11 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not contain 1,2-diphenylhydrazine limitations.

v. Ammonia

(a) Water Quality Objectives. The discharge into Lower San Francisco Bay occurs south of the San Francisco Bay Bridge. For these waters, Basin Plan section 3.3.20 contains water quality objectives for un-ionized ammonia of 0.025 mg/L as an annual median and 0.4 mg/L as a maximum. These objectives were translated from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are unavailable to analyze for un-ionized ammonia, and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water.

To translate the un-ionized ammonia objectives, pH, salinity, and temperature data were obtained from the RMP station nearest to the outfall (Alameda station, BB70). The un-ionized fraction of total ammonia was calculated as follows:

$$\text{For salinity} > 10 \text{ ppt: fraction of } NH_3 = \frac{1}{1+10^{(pK-pH)}}$$

Where:

$$pK = 9.245 + 0.116(I) + 0.0324\,(298 - T) + \frac{0.0415(P)}{(T)}$$

$$I = \text{Molal ionic strength of saltwater} = \frac{19.9273(S)}{(1{,}000 - 1.005109(S))}$$

S = Salinity (parts per thousand)

T = Temperature (degrees Kelvin)

P = Pressure (one atmosphere)

The median and 90th percentile un-ionized ammonia fractions were then used to express the daily maximum and the annual average un-ionized objectives as chronic and acute total ammonia criteria. This approach is consistent with U.S. EPA guidance on translating dissolved metal water quality objectives to total recoverable metal water quality objectives (U.S. EPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion,* EPA Publication 823-B-96-007).

The equivalent total ammonia chronic and acute criteria are 1.1 mg/L and 8.5 mg/L as nitrogen.

(b) Reasonable Potential Analysis. This Order relies on the SIP methodology as guidance to perform the reasonable potential analysis. This Order establishes total ammonia WQBELs because the maximum effluent concentration (42 mg/L as nitrogen) exceeds the governing water quality criterion (1.1 mg/L as nitrogen), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. This Order relies on the SIP methodology as guidance to calculate the total ammonia WQBELs. The WQBELs are the more stringent AMEL and MDEL based on independent calculations using the chronic and acute objectives. To calculate an AMEL and MDEL based on the chronic objective, the median background concentration at the Alameda RMP station (BB70) (0.11 mg/L) and the minimum dilution based on the average flow (231:1) were used. To calculate an AMEL and MDEL based on the acute objective, the maximum background concentration (0.22 mg/L) and the minimum dilution based on the maximum flow (51:1) were used. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration and long-term average dilution represent ambient conditions better than a daily maximum concentration and minimum dilution.

The total ammonia WQBELs in this Order are based on the chronic objective. Calculated using an effluent data coefficient of variation of 0.15 and a dilution credit of D = 230, they are an AMEL of 220 mg/L and an MDEL of 300 mg/L.

Statistical adjustments were made to the total ammonia WQBEL calculations. The SIP assumes a 4-day average concentration and a monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, but the Basin Plan's chronic water quality objective for un-ionized ammonia is based on an annual median instead of the typical 4-day average. Therefore, a 365-day average and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for the chronic criteria is longer than 30 days) were used. These statistical adjustments are supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia* (64 Fed. Reg. 71974-71980, December 22, 1999).

The newly calculated AMEL and MDEL are less stringent than those in the previous order (190 µg/L and 290 µg/L); therefore, this Order retains the previous AMEL and MDEL to avoid backsliding.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's total ammonia WQBELs are the same as those in the previous order.

(e) Growing Regional Concern with Nutrients. As described above and in section IV.C.4.a.iii of this Fact Sheet, a translated Basin Plan un-ionized ammonia objective and a conservative estimate of actual initial dilution were used to calculate the total ammonia effluent limitations. In the future, the Regional Water Board may grant less dilution credit or change the ammonia limitations in other ways to address growing concerns about nutrients in the receiving water. Currently, a region-wide effort is underway to study and evaluate potential effects. This effort, which is referred to as the San Francisco Bay Nutrient Strategy, includes developing a nutrient assessment framework that can be used to calculate WQBELs for nutrients. The Regional Water Board, through its Executive Officer, has also required wastewater dischargers, including this Discharger, to monitor nutrients, including ammonia, in their influent and

effluent. This information will be used to compare nutrient loads from wastewater discharges to loads from other sources, to support modeling and evaluation of load reduction scenarios, and to determine the need for additional wastewater treatment to address nutrients.

c. Effluent Limit Calculations. The following table shows the WQBEL calculations:

Table F-10. WQBEL Calculations

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin TEQ	1,2-Diphenyl-hydrazine	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L N**	**mg/L N**
Basis and Criteria type	Basin Plan SSO	Basin Plan SSO	Basin Plan Narrative	CTR Human Health	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	-----	-----	-----	-----	8.5	-----
Criteria -Chronic	-----	-----	-----	-----	-----	1.05
SSO Criteria -Acute	9.4	9.4	-----	-----	-----	-----
SSO Criteria -Chronic	6.0	2.9	-----	-----	-----	-----
Water Effects ratio (WER)	1	1	1	1	1	1
Lowest water quality objective	6.0	2.9	1.4E-08	0.54	8.5	1.05
Site Specific Translator - MDEL	0.87	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	0.73	-----	-----	-----	-----	-----
Dilution Factor (D)	9	9	0	9	50	230
No. of samples per month	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	N	N
Applicable Acute water quality objective	10.8	9.4	-----	-----	9	-----
Applicable Chronic water quality objective	8.2	2.9	-----	-----	-----	1.1
HH criteria	-----	220000	1.4E-08	0.54	-----	-----
Background (Maximum Conc for Aquatic Life calc)	2.5	0.4	-----	-----	0.22	0.11
Background (Average Conc for Human Health calc)	-----	0.4	5.3E-08	3.7E-03	-----	-----
Is the pollutant on the 303d list (Y/N)?	N	N	Y	N	N	N
ECA acute	85	90	-----	-----	424	
ECA chronic	59	25	-----	-----	-----	218
ECA HH	-----	2.2E+06	1.4E-08	5.4	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	N
Average of effluent data	6.0	1.9	N/A	0.22	35	35
Standard Deviation of effluent data	1.7	1.5	N/A	0.28	5.2	5.2
CV calculated	0.28	0.80	N/A	N/A	0.15	0.15
CV (Selected) - Final	0.28	0.80	0.60	0.60	0.15	0.15
ECA acute mult99	0.55	0.25	-----	-----	0.72	-----
ECA chronic mult99	0.73	0.44	-----	-----	-----	0.98
LTA acute	47	23	-----	-----	305	-----
LTA chronic	43	11	-----	-----	-----	214
minimum of LTAs	43	11	-----	-----	305	214

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin TEQ	1,2-Diphenyl-hydrazine	Total Ammonia (acute)	Total Ammonia (chronic)
AMEL mult95	1.2	1.8	1.6	1.6	1.1	1.0
MDEL mult99	1.8	4.0	3.1	3.1	1.4	1.4
AMEL (aq life)	54	20	-----	-----	340	220
MDEL(aq life)	79	45	-----	-----	420	300
MDEL/AMEL Multiplier	1.5	2.3	2.0	2.0	1.2	1.3
AMEL (human hlth)	-----	2.2E+06	1.4E-08	5.4	-----	-----
MDEL (human hlth)	-----	5.0E+06	2.8E-08	11	-----	-----
minimum of AMEL for Aq. life vs HH	54	20	1.4E-08	5.4	340	220
minimum of MDEL for Aq. Life vs HH	79	43	2.8E-08	11	420	300
AMEL in previous order	53	20	-----	-----	190	190
MDEL in previous order	76	43	-----	-----	290	290
Final limit - AMEL	53	20	1.4E-08	5.4	190	190
Final limit - MDEL	76	43	2.8E-08	11	290	290

5. Whole Effluent Acute Toxicity

This Order includes dry weather effluent limitations for whole effluent acute toxicity based on Basin Plan Table 4-3. All bioassays are to be performed according to the U.S. EPA approved method in 40 C.F.R. section 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition (EPA-821-R-02-012). The approved test species specified in the MRP are rainbow trout (*Oncorhynchus mykiss*) and fathead minnow (*Pimephales promelas*).

Based on Basin Plan section 3.3.20, if the Discharger can demonstrate that ammonia causes acute toxicity in excess of the acute toxicity limitations in this Order, and that the ammonia in the discharge complies with the ammonia effluent limitations in this Order, then such toxicity does not constitute a violation of the effluent limitations for whole effluent acute toxicity.

6. Whole Effluent Chronic Toxicity

a. Water Quality Objective. Basin Plan section 3.3.18 states, "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community."

b. Reasonable Potential Analysis. The Discharger conducted semiannual chronic toxicity tests during the previous order term using the echinoderm larval development test. The previous order contained chronic toxicity triggers (three-sample median of 10 TUc or single-sample maximum of 20 TUc) for accelerated chronic toxicity testing. The maximum single-sample chronic toxicity result during the previous order term was 10 TUc in July 2009. The relatively low toxicity indicates low reasonable potential for

chronic toxicity so this Order contains only a narrative chronic toxicity limit. A numeric limit is unwarranted.

c. Requirements. The Order contains a narrative chronic toxicity effluent limitation based on the Basin Plan's narrative toxicity water quality objective. The Order also includes requirements for chronic toxicity monitoring to ensure attainment of the narrative toxicity objective and a monitoring "trigger" for initiation of accelerated monitoring requirements when exceeded. The Discharger is required to implement a chronic toxicity reduction evaluation in some circumstances. These requirements are consistent with CTR and SIP requirements.

d. Screening Phase Study and Monitoring Requirement. The MRP requires the Discharger to conduct a chronic toxicity screening phase study, as described in MRP Appendix E-1, prior to permit reissuance. The Discharger's April 2012 chronic toxicity screening study did not indicate the presence of toxicity effects in the effluent for the test species examined. Therefore, the Discharger will continue to using the echinoderm larval development test (i.e., purple sea urchin [*Strongylocentroltus purpuratus*] or sand dollar [*Dendraster excentricus*]. The accelerated monitoring triggers are based on Basin Plan Table 4-5.

D. Effluent Limitation Considerations

1. Anti-backsliding. This Order complies with the anti-backsliding provisions of CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l), which generally require effluent limitations in a reissued permit to be as stringent as those in the previous permit. Most requirements of this Order are at least as stringent as those in the previous order, with some exceptions:

- This Order does not retain silver, lead, zinc, tetrachloroethylene, tributyltin, and bis(2-ethylhexyl)phthalate limits from the previous order because data no longer indicate that these pollutants have reasonable potential to exceed water quality objectives. This is consistent with State Water Board Order WQ 2001-16.

- This Order replaces the previous order's wet weather enterococcus and fecal coliform limits with a new wet weather enterococcus limit. The change from an instantaneous maximum enterococcus limit to a geometric mean is not subject to anti-backsliding requirements because the two limits reflect different averaging periods, both are consistent with Basin Plan Table 3-1 water quality objectives, and a direct comparison between the two types of limits is impossible. Likewise, the change from fecal coliform limits to an enterococcus limit is not subject to anti-backsliding requirements because a direct comparison between these two types of limits is also impossible.

- This Order does not retain mercury limits from the previous order because NPDES Permit No. CA0038849 now covers mercury discharges.

2. Antidegradation. This Order complies with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. It continues the status quo with respect to the level of discharge authorized in the previous order, which is the baseline by

which to measure whether degradation will occur. This Order does not allow for a reduced level of treatment relative to the previous order.

This Order corrects a typographical error in the previous order. Discharge Prohibition III.E allows the average dry weather flow to increase from 84.5 MGD to 85.4 MGD. Earlier orders (e.g., Order No. R2-2002-0073) allowed this slightly higher flow. This change will not affect water quality, particularly since the effluent limitations and other provisions of this Order require the Discharger to maintain its existing treatment performance. Therefore, discharges subject to this Order will not degrade water quality, and findings authorizing degradation are unnecessary.

This Order replaces the previous order's wet weather enterococcus and fecal coliform limits with a new wet weather enterococcus limit. This change will not degrade receiving water quality because the old and new limits are all consistent with Basin Plan Table 3-1 water quality objectives, and any difference in effects would be temporally limited and would not result in any long-term deleterious effect on water quality (e.g., they would cease after wet weather is over).

3. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. This Order's technology-based requirements implement minimum, applicable federal technology-based requirements. In addition, this Order contains more stringent effluent limitations as necessary to meet water quality standards. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement CWA requirements.

   This Order's WQBELs have been derived to implement water quality objectives that protect beneficial uses. The beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating these WQBELs are based on the CTR, as implemented in accordance with the SIP, which U.S. EPA approved on May 18, 2000. U.S. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). U.S. EPA approved the remaining beneficial uses and water quality objectives so they are applicable water quality standards pursuant to 40 C.F.R. section 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limitations in sections V.A.1 and V.A.2 of the Order are based on Basin Plan narrative and numeric water quality objectives. The receiving water limitation in section V.A.3 of the Order requires compliance with federal and State water quality standards in accordance with the CWA and regulations adopted thereunder.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 C.F.R. section 122.41 and additional conditions applicable to specific categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with these provisions. The conditions set forth in 40 C.F.R. sections 122.41(a)(1) and (b) through (n) apply to all state-issued NPDES permits and must be incorporated into the permits either expressly or by reference.

In accordance with 40 C.F.R. section 123.25(a)(12), states may omit or modify conditions to impose more stringent requirements. Attachment G contains standard provisions that supplement the federal standard provisions in Attachment D.

This Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the State's enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates Water Code section 13387(e) by reference.

B. Monitoring and Reporting

Pursuant to 40 C.F.R. section 122.48, NPDES permits must specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383, and 40 C.F.R. sections 122.41(h) and (j), authorize the Regional Water Board to require technical and monitoring reports. This Order establishes monitoring and reporting requirements, contained in the Monitoring and Reporting Program (Attachment E), that implement federal and State requirements. For more background regarding these requirements, see section VII of this Fact Sheet.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 C.F.R. sections 122.62 and 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new and relevant information that may become available in the future, and other circumstances as allowed by law.

2. Effluent Characterization Study and Report

This Order does not include effluent limitations for priority pollutants that do not demonstrate reasonable potential, but this provision requires the Discharger to continue monitoring for these pollutants during dry weather as described in the MRP and Attachment G. Dry weather monitoring data are necessary to verify that the "no" and "cannot determine" reasonable potential analysis conclusions of this Order remain valid. This requirement is authorized pursuant to CWC section 13267, and is necessary to inform the

next permit reissuance and to ensure that the Discharger takes timely action in response to any unanticipated change in effluent quality during the term of this Order.

3. Pollutant Minimization Program

This provision is based on Basin Plan section 4.13.2 and SIP section 2.4.5.

4. Special Provisions for Municipal Facilities

a. Pretreatment Program. This provision is based on 40 C.F.R. part 403. The Discharger implements a pretreatment program due to the nature and volume of industrial influent to the Southeast Plant. Two significant industrial users discharge to the Facility and are subject to the Discharger's pretreatment program. This provision lists the Discharger's responsibilities regarding its pretreatment program and requires compliance with the provisions in Attachment H, "Pretreatment Requirements."

b. Sludge and Biosolids Management. "Sludge" refers to the solid, semisolid, and liquid residue removed during primary, secondary, and advanced wastewater treatment processes. "Biosolids" refers to sludge that has been treated and may be beneficially used. This provision is based on Basin Plan section 4.17 and 40 C.F.R. parts 257 and 503.

c. Collection System Management. The Discharger's collection system is predominantly a combined sewer system with some limited separate sanitary sewers. It is part of the Facility regulated through this Order. This provision explains this Order's requirements as they relate to the Discharger's collection system and promotes consistency with the State Water Board's *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* (General Collection System WDRs), Order 2006-0003-DWQ as amended by WQ 2008-0002-EXEC.

i. Separate Sanitary Sewer System. The General Collection System WDRs require public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Collection System WDRs. The General Collection System WDRs contain requirements for collection system operation and maintenance and for reporting and mitigating sanitary sewer overflows. They also require agencies to develop sanitary sewer management plans and report all sanitary sewer overflows. The Discharger must comply with both the General Collection System WDRs and this Order. To the extent that the Discharger's separate sanitary sewer collection system is part of the Facility subject to this Order, certain provisions apply, as specified in Provision VI.C.4.c.i.

ii. Combined Sewer System. For purposes of this Order, an "excursion" is a release or diversion of untreated or partially treated wastewater from the combined sewer system that exits the system temporarily and then re-enters it. The Discharger and U.S. EPA developed the collection system excursion reporting requirement in this Order so the information would be available.

5. Combined Sewer Overflow Controls

The *Combined Sewer Overflow Control Policy* addresses combined sewer system operations. Its requirements are summarized below as they relate to this Order. The Discharger has designed, constructed, and implemented control strategies that address wet weather flows. This provision specifies performance criteria for wet weather combined sewer system operations.

a. Combined Sewer Operations and Maintenance Plan. This provision is necessary to ensure that combined sewer system operations and maintenance comply with the Nine Minimum Controls and the Long-Term Control Plan requirements of the *Combined Sewer Overflow Control Policy*.

b. Nine Minimum Controls. The *Combined Sewer Overflow Control Policy* requires these "Nine Minimum Controls" to satisfy CWA technology-based requirements:

- Conduct proper operations and maintenance programs,
- Maximize use of collection system for storage,
- Review and modify pretreatment program,
- Maximize flow to Southeast Plant and North Point Facility,
- Prohibit dry weather combined sewer overflows,
- Control solid and floatable materials in combined sewer discharges,
- Develop and implement pollution prevention program,
- Notify public of combined sewer discharges, and
- Monitor to characterize wet weather discharge impacts and efficacy of controls.

The *Combined Sewer Overflow Control Policy* requires monitoring to ascertain the effectiveness of controls and to verify compliance with water quality standards and protection of beneficial uses. If implemented controls do not result in attainment of water quality standards, including beneficial uses, a discharger must evaluate its operating practices. If monitoring indicates that water quality standards are not met, the data may be used to identify additional controls necessary to achieve water quality standards.

Over the previous order term, the Discharger monitored combined sewer discharges (*Special Study: Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities*, June 29, 2012). It found that average combined sewer discharge pollutant concentrations are below acute water quality objectives for metals and other priority pollutants, with the exceptions of copper and zinc. The average dissolved zinc concentration was 91 µg/L (based on the default CTR acute translator), compared to the water quality objective of 90 µg/L. The average dissolved copper concentration was 19 µg/L (based on the Basin Plan Table 7.2.1-2 acute translator), compared to the water quality objective of 10.8 µg/L. Water quality objectives apply in the receiving water, not combined sewer discharges *per se*. Therefore, given the relatively short duration of combined sewer discharges (i.e., just a few hours each time), and accounting for the inevitable dilution within the receiving waters during wet weather, water quality standards appear to be maintained.

The Order requires the Discharger to continue monitoring wet weather discharges to characterize their impacts and evaluate the efficacy of its wet weather controls. The Order also requires receiving water monitoring for enterococcus and fecal coliform at recreational use locations to determine the impacts of wet weather discharges on water contact recreation. The data collected may be used to document current conditions and evaluate whether beneficial uses are protected.

Among other requirements, the Nine Minimum Controls require the Discharger to notify the public when combined sewer discharges occur. The Discharger's current notification process fulfills these requirements. It includes posting permanent signs at San Francisco beaches that inform the public in English, Spanish, and Chinese that international "No Swimming" signs will be posted when it is unsafe to enter the water and to warn users that bacteria concentrations may be elevated during heavy rain. The Discharger posts "No Swimming" signs at beaches whenever a combined sewer discharge occurs in the area. These signs remain posted until water sampling indicates that bacteria concentrations have dropped below levels of concern for water contact recreation (i.e., the single-sample bacteriological standards of Cal. Code of Regs. tit. 17, § 7958[a][1]). Both types of signs provide the Discharger's toll-free water quality hotline (1-877-SFBEACH) that the Discharger updates weekly and whenever new bacteria results are available. The Discharger also provides color-coded indicators (green/open; red/posted) of beach water quality conditions on the Internet (http://beaches.sfwater.org).

The Discharger has designated Lewis Harrison as the contact person responsible for the wastewater collection system. The Order allows the Discharger to designate a different contact person as long as the Discharger notifies the Regional Water Board within 90 days.

c. Long-Term Control Plan. The *Combined Sewer Overflow Control Policy* requires implementation of a Long-Term Control Plan to to satisfy CWA water quality-based requirements (see section IV.C.1 of this Fact Sheet). The Discharger designed and built a combined sewer system that provides for long-term control and treatment. This provision specifies how the combined sewer system is to be operated, consistent with implementation of the Long-Term Control Plan. The Discharger designed the system based on historical rainfall to achieve the following long-term average annual goals:

- Four combined sewer discharge events along the North Shore (Discharge Point Nos. 009 through 017);
- Ten combined sewer discharge events within the Central Basin (Discharge Point Nos. 018 through 036); and
- One combined sewer discharge event along the Southeast Sector (Discharge Point Nos. 037 through 043).

Some years are wetter than others and may contribute more or less flow than anticipated by these design goals; therefore, these goals are not intended for determining compliance.

This provision requires the Discharger to synthesize and update its Long-Term Control Plan into one document that reflects current circumstances. The updated plan is necessary to optimize system operations so as to maximize pollutant removal during wet weather

and minimize combined sewer discharges. This requirement recognizes that circumstances have changed since the plan was first developed and implemented. However, the Order maintains the historical long-term average annual design goals for combined sewer discharges.

In addition to the system design elements of the plan, the Discharger is to describe additional measures, to the extent technically and economically feasible, to minimize combined sewer discharges (e.g., implementing and promoting low-impact development measures that enhance stormwater percolation and slow stormwater runoff to the combined sewer system).

The Discharger is also to develop and propose a mechanism to evaluate the performance of its wet weather disinfection system for Discharge Point Nos. 001 through 006. Based on the proposal, the Regional Water Board may consider replacing the wet weather enterococcus limits in this Order when it next takes up this permit for reissuance.

This provision also requires the Discharger to review its approach to protecting sensitive areas, which include waters with threatened or endangered species and their habitat, waters with primary contact recreation, and waters with shellfish beds, among others. This provision implements *Combined Sewer Overflow Control Policy* section II.C.3, "Consideration of Sensitive Areas," which requires the following with each permit reissuance:

i. Prohibit new or significantly increased combined sewer discharges;

ii. Eliminate and relocate combined sewer discharges that discharge to sensitive areas wherever physically possible and economically achievable, except where elimination or relocation would provide less environmental protection than additional treatment (where elimination or relocation is not physically possible and economically achievable, or would provide less environmental protection than additional treatment, treatment for remaining combined sewer discharges must be sufficient to protect beneficial uses); and

iii. Where elimination or relocation is not physically possible and economically achievable, reassess the situation, based on new or improved techniques to eliminate or relocate the combined sewer discharges, or based on changed circumstances that influence economic achievability, with each subsequent permit term.

d. This provision sets forth steps the Discharger must take if the Executive Offer finds that its discharges cause violations of water quality standards in receiving waters.

6. Other Special Provisions

a. Copper Action Plan. This provision is based on Basin Plan section 7.2.1.2 and is necessary to ensure that use of copper site-specific objectives is consistent with antidegradation policies. Data the San Francisco Estuary Institute compiled for 2008-2010 indicate no degradation of San Francisco Bay water quality with respect to copper (http://www.sfei.org/content/copper-site-specific-objective-3-year-rolling-averages).

b. Cyanide Action Plan. This provision is based on Basin Plan section 4.7.2.2 and is necessary to ensure that use of cyanide site-specific objectives is consistent with antidegradation policies. The threshold for considering influent cyanide concentrations to indicate a possible "significant cyanide discharge" in the Discharger's service area is set at 21 µg/L. This concentration is about 1.5 times the maximum cyanide concentration (14 µg/L) found in the facility's influent during the previous order term. Because the Discharger has not observed influent cyanide concentrations greater than 14 µg/L, if influent concentrations 1.5 times this level were observed, there could be a significant cyanide source.

c. Standard Operating Procedures Requirement for Resource Recovery. Standard Operating Procedures are required for dischargers that accept hauled waste fats, oil, and grease for injection into anaerobic digesters. The development and implementations of Standard Operating Procedures for management of these materials is intended to allow the California Deparment of Resources Recycling and Recovery to exempt operations from separate and redundant permitting programs. If the Discharger does not accept fats, oil, and grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

VII. RATIONALE FOR MONITORING AND REPORTING PROGRAM (MRP)

Attachment E contains the MRP for this Order. It specifies sampling stations, pollutants to be monitored (including all parameters for which effluent limitations are specified), monitoring frequencies, and reporting requirements. The following provides the rationale for the MRP requirements.

A. MRP Requirements Rationale

1. **Influent Monitoring.** Influent flow monitoring is necessary to identify wet weather as defined in Attachment A and to evaluate implementation of Long-Term Control Plan requirements. BOD_5 and TSS monitoring is necessary to evaluate compliance with this Order's 85 percent removal requirement. Basin Plan section 4.7.2.2 requires cyanide monitoring because this Order is based on site-specific cyanide water quality objectives.

2. **Effluent Monitoring.** Effluent flow monitoring is necessary to evaluate compliance with Prohibition III.E (average dry weather flow) and to understand Facility operations. During dry weather, monitoring for the other parameters in Table E-3 is necessary to evaluate compliance with this Order's effluent limitations applicable to Discharge Point No. 001. During wet weather, enterococcus and total residual chlorine monitoring is necessary to evaluate compliance with this Order's effluent limitations applicable to Discharge Point Nos. 001 through 006. Fecal coliform monitoring will provide additional information regarding the efficacy of controls. During combined sewer discharge events, duration and flow volume monitoring is necessary to characterize combined sewer discharges. Provision VI.C.2 of the Order requires monitoring for additional priority pollutants for which there are no effluent limits to inform the next permit reissuance and to ensure that the Discharger takes timely steps in response to any unanticipated change in effluent quality.

Provision VI.C.5.b.ix(a) of the Order requires monitoring to characterize combined sewer discharge impacts and efficacy of controls.

3. **Whole Effluent Toxicity Testing**. Acute and chronic whole effluent toxicity tests are necessary to evaluate compliance with acute and chronic toxicity effluent limitations during dry weather. Chronic toxicity tests during dry weather are also necessary to evaluate whether chronic toxicity triggers the need for a Toxicity Reduction Evaluation. Acute toxicity tests during wet weather are necessary to evaluate the efficacy of wet weather controls.

4. **Receiving Water Monitoring.** The Discharger is required to continue participating in the RMP, which involves collecting data on pollutants and toxicity in San Francisco Bay water, sediment, and biota. This monitoring is necessary to characterize the receiving water and the effects of the discharges authorized in this Order. The Discharger is also required to monitor shoreline locations where water contact recreation takes place. This monitoring is necessary to assess the possible effects of combined sewer discharges and to comply with Provisions VI.C.5.b.viii, "Notify Public of Combined Sewer Discharges," and VI.C.5.b.ix, "Monitor to Characterize Combined Sewer Discharge Impacts and Efficacy of Controls."

5. **Pretreatment and Biosolids Monitoring.** The pretreatment and biosolids monitoring requirements for influent, effluent, and biosolids are necessary to evaluate compliance with the Discharger's U.S. EPA-approved pretreatment program. Biosolids monitoring is also required pursuant to 40 C.F.R. part 503.

B. Monitoring Requirements Summary. The table below summarizes routine monitoring requirements. This table is for informational purposes only. The actual requirements are specified in the MRP and elsewhere in this Order.

Table F-11. Monitoring Requirements Summary

Parameter	Influent INF-001	Effluent EFF-001A	Effluent EFF-001B, EFF-002, and EFF-003	Effluent CSD-010 through CSD-043	Biosolids BIO-001	Receiving Water
Flow	Continuous[1]	Continuous[1]	Continuous[1]	1/Event[1]		
BOD_5	1/Week[2]	1/Week[3]				
TSS	5/Week[2]	5/Week	1/Month	1/Event		
Chemical Oxygen Demand (COD)		5/Week[3]	1/Month			
Oil and Grease		1/Month	1/Month			
pH		Continuous or 5/Week	Continuous or 1/Month	1/Event		Support RMP
Total Residual Chlorine		Continuous or 1/Hour	Continuous or 1/Hour			
Acute Toxicity		1/Month	1/Month[8]			Support RMP
Chronic Toxicity		2/Year				Support RMP
Enterococcus		4/Year[4]	1/Day			1/Day[6]
Fecal Coliform		1/Week	1/Day			1/Day[6]
Dissolved Oxygen						Support RMP
Sulfides						Support RMP
Temperature						Support RMP
Copper, Total Recoverable		1/Month	1/Month			Support RMP
Cyanide, Total	1/Month[2]	1/Month	1/Month	1/Event		Support RMP

Parameter	Influent INF-001	Effluent EFF-001A	Effluent EFF-001B, EFF-002, and EFF-003	Effluent CSD-010 through CSD-043	Biosolids BIO-001	Receiving Water
Ammonia, Total		1/Month	1/Month	1/Event		Support RMP
Dioxin-TEQ		2/Year				Support RMP
1,2-Diphenylhydrazine		1/Month				Support RMP
Settleable Matter				1/Event		
All other priority pollutants		1/Year	1/Year	1/Year[7]		Support RMP
Volatile Organic Compounds	2/Year	2/Year			2/Year	
Base/Neutrals Acid Extractable Organic Compounds	2/Year	2/Year			2/Year	
Metals[2]	1/Month	1/Month		1/Event	2/Year	Support RMP
Hexavalent Chromium	1/Month	1/Month			2/Year	Support RMP
Mercury	1/Month	1/Month			2/Year	Support RMP
Metric tons/year					See Attach. G, § III.B.1	
Paint filter test					See Attach. G, § III.B.2	

Footnotes:

[1] The following flow information is to be reported:

- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

For Monitoring Locations CSD-010 through CSD-043, only total flow volume (MG) and event duration are to be reported.

[2] The metals are arsenic, cadmium, copper, lead, nickel, selenium, silver, and zinc.

[3] If the COD_5 concentration exceeds 75 mg/L on two consecutive days, the Discharger is to increase the BOD_5 sampling frequency to daily until it demonstreates that the BOD_5 concentration is below 30 mg/L.

[4] If the enterococcus effluent limitation is exceeded, the Discharger is to conduct 5/Month accelerated sampling for at least three consecutive months. If full compliance is demonstrated after the three months, the Discharger may return to the 4/Year sampling.

[5] Influent monitoring is only required during dry weather.

[6] Monitoring is to be once per day following nearby combined sewer discharges. Otherwise, monitoring is to be sufficient to characterize ambient background conditions (e.g., weekly).

[7] Monitoring is only required at Monitoring Location CSD-041.

[8] Monitoring is only required at Monitoring Locations EFF-001B and EFF-003.

VIII. PUBLIC PARTICIPATION

The Regional Water Board considered the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, Regional Water Board staff developed tentative WDRs and encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through *The Recorder*. The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay.

B. Written Comments. Interested persons were invited to submit written comments concerning the tentative WDRs as explained through the notification process. Comments were due either in person or by mail at the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California 94612, to the attention of Derek Whitworth.

For full staff response and Regional Water Board consideration, the written comments were due at the Regional Water Board office by 5:00 p.m. on July 1, 2013.

C. Public Hearing. The Regional Water Board held a public hearing on the tentative WDRs during its regular meeting at the following date and time, and at the following location:

Date: Wednesday, August 14, 2013
Time: 9:00 a.m.
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Derek Whitworth, (510) 622-2349, DWhitworth@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony wasrequested to be in writing.

Dates and venues change. The Regional Water Board web address is http://www.waterboards.ca.gov/sanfranciscobay, where one could access the current agenda for changes in dates and locations.

D. Reconsideration of Waste Discharge Requirements. Any aggrieved person may petition the State Water Board to review the Regional Water Board decision regarding the final WDRs. The State Water Board must receive the petition at the following address within 30 calendar days of the Regional Water Board action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml.

E. Information and Copying. The Report of Waste Discharge, related supporting documents, and comments received are on file and may be inspected at the address above at any time between 9:00 a.m. and 5:00 p.m., Monday through Friday. Copying of documents may be arranged by calling (510) 622-2300.

F. Register of Interested Persons. Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference the Facility, and provide a name, address, and phone number.

G. Additional Information. Requests for additional information or questions regarding this Order should be directed to Derek Whitworth at (510) 622-2349 or DWhitworth@waterboards.ca.gov.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

March 2010

Contents

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. Contingency Plan - The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. Spill Prevention Plan - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;

b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. Operation and Maintenance (O&M) Manual - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. Wastewater Facilities Status Report - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) - POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Storm Water – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all storm water flows from the facility to the wastewater treatment plant headworks.

1. Storm Water Pollution Prevention Plan (SWPP Plan)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of storm water discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to storm water discharges, or may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

   1) Storm water conveyance, drainage, and discharge structures;

   2) An outline of the storm water drainage areas for each storm water discharge point;

   3) Paved areas and buildings;

   4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

   5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

   6) Surface water locations, including springs and wetlands; and

   7) Vehicle service areas.

c. A narrative description of the following:

   1) Wastewater treatment process activity areas;

   2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;

   3) Material storage, loading, unloading, and access areas;

   4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and

   5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm water pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm water management practices

Storm water management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the storm water drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in Table C for compliance determination, or any other method described in 40 CFR part 136 or approved by U.S. EPA (such as the 1600 series) if authorized by the Regional Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

1) The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

2) The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

3) The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

4) Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does

not comply with permit limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

i. The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

ii. The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

1) If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter is in compliance with the monthly average limit.

2) If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

3) If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self monitoring report (SMR).

4) The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

5) When a bypass occurs (except one subject to provision III.A.3.b.6 below), the Discharger shall monitor flows and collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass (including acute toxicity using static renewals), except chronic toxicity, unless otherwise stipulated by the MRP.

6) Unless otherwise stipulated by the MRP, when a bypass approved pursuant to Attachment D, Standard Provisions, Sections I.G.2 or I.G.4, occurs, the Discharger shall monitor flows and, using appropriate procedures as specified in the MRP, collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze for total suspended solids (TSS) using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limits using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze the retained samples for that discharge

for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger shall analyze the retained samples for one approved bypass discharge event for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

c. Storm Water Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for storm water discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with storm water) is directed to the headworks. For storm water not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

1) Conduct visual observations of the storm water discharge locations during daylight hours at least once per month during a storm event that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

2) Measure (or estimate) the total volume of storm water discharge, collect grab samples of storm water discharge from at least two storm events that produce significant storm water discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

   The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

3) Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

4) Samples shall be collected from all locations where storm water is discharged. Samples shall represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that storm water discharges from different locations are substantially identical.

5) Records of all storm water monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

1) Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

2) Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

3) Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

- Land Application: Arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc
- Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)
- Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (AttachmentD)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of U.S. EPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. Treatment Facility Overflows

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

1) Identification of all violations of effluent limits or other waste discharge requirements found during the reporting period;

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that

supports invalidation [e.g., laboratory sheet, log entry, test results, etc.], and discussion of the corrective actions taken or planned [with a time schedule for completion] to prevent recurrence of the sampling or measurement problem.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (ML) to zero. The Discharger shall calculate and report dioxin-TEQs using the following formula,

where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \times TEF_x \times BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener x
BEFx = bioaccumulation equivalency factor for congener *x*

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	1998 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0001	0.02

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all storm water to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) *Reporting Method*: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until U.S. EPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	California Emergency Management Agency (Cal EMA)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from Cal EMA)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISION – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

Cd = Average daily concentration = $\frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$

In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
	Chromium (total)[3]	SM 3500					50	2	10	0.5	1			1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[4]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[5]	0100.2 [6]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										

[1] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another U.S. EPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[2] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[3] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 ug/l).

[4] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[5] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[6] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[7]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											

[7] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

ATTACHMENT H – PRETREATMENT REQUIREMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT H
PRETREATMENT PROGRAM PROVISIONS

For

NPDES POTW WASTEWATER DISCHARGE PERMITS

March 2011
(Corrected May 2011)

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Attachment H: Pretreatment Program Provisions

A. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR 403, including any regulatory revisions to Part 403. Where a Part 403 revision is promulgated after the effective date of the Discharger's permit and places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the issuance date of this permit or six months from the effective date of the Part 403 revisions, whichever comes later.

(If the Discharger cannot complete the required actions within the above six-month period due to the need to process local adoption of sewer use ordinance modifications or other substantial pretreatment program modifications, the Discharger shall notify the Executive Officer in writing at least 60 days prior to the six-month deadline. The written notification shall include a summary of completed required actions, an explanation for why the six month deadline cannot be met, and a proposed timeframe to complete the rest of the required actions as soon as practical but not later than within twelve months of the issuance date of this permit or twelve months of the effective date of the Part 403 revisions, whichever comes later. The Executive Officer will notify the Discharger in writing within 30 days of receiving the request if the extension is not approved.)

The United States Environmental Protection Agency (U.S. EPA), the State and/or other appropriate parties may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Clean Water Act (Act).

B. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Act with timely, appropriate and effective enforcement actions. The Discharger shall cause nondomestic users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

C. The Discharger shall perform the pretreatment functions as required in 40 CFR 403 and amendments or modifications thereto including, but not limited to:

1. Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);

2. Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);

3. Publish an annual list of nondomestic users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(viii);

4. Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and

5. Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.

D. The Discharger shall submit annually a report to U.S. EPA Region 9, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous calendar year. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix H-1 entitled, "Requirements for Pretreatment Annual Reports." The annual report is due each year on February 28.

E. The Discharger shall submit a pretreatment semiannual report to U.S. EPA Region 9, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, information specified in Appendix H-2 entitled, "Requirements for Pretreatment Semiannual Reports." The semiannual report is due July 31 for the period January through June. The information for the period July through December of each year shall be included in the Annual Report identified in Appendix H-1. The Executive Officer may exempt the Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and U.S. EPA's comment and approval.

F. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge (biosolids) as described in Appendix H-4 entitled, "Requirements for Influent, Effluent and Sludge (Biosolids) Monitoring." (The term "biosolids," as used in this Attachment, shall have the same meaning as wastewater treatment plant "sludge" and will be used from this point forward.) The Discharger shall evaluate the results of the sampling and analysis during the preparation of the semiannual and annual reports to identify any trends. Signing the certification statement used to transmit the reports shall be deemed to certify the Discharger has completed this data evaluation. A tabulation of the data shall be included in the pretreatment annual report as specified in Appendix H-4. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX H-1

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on February 28 and shall contain activities conducted during the previous calendar year. The purpose of the Annual Report is to:

- Describe the status of the Discharger's pretreatment program; and
- Report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation.

The report shall contain, at a minimum, the following information:

A. Cover Sheet

The cover sheet shall include:

1. The name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of the Discharger(s) that is part of the Pretreatment Program;

2. The name, address and telephone number of a pretreatment contact person;

3. The period covered in the report;

4. A statement of truthfulness; and

5. The dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(m)).

B. Introduction

This section shall include:

1. Any pertinent background information related to the Discharger and/or the nondomestic user base of the area;

2. List of applicable interagency agreements used to implement the Discharger's pretreatment program (e.g., Memoranda of Understanding (MOU) with satellite sanitary sewer collection systems); and

3. A status summary of the tasks required by a Pretreatment Compliance Inspection (PCI), Pretreatment Compliance Audit (PCA), Cleanup and Abatement Order (CAO), or other pretreatment-related enforcement actions required by the Regional Water Board or the U.S. EPA. A more detailed discussion can be referenced and included in the section entitled, "Program Changes," if needed.

C. Definitions

This section shall include a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program, or the Discharger may provide a reference to its website if the applicable definitions are available on-line.

D. Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the Discharger's treatment plant(s) that the Discharger knows of or suspects were caused by nondomestic user discharges. Each incident shall be described, at a minimum, consisting of the following information:

1. A description of what occurred;

2. A description of what was done to identify the source;

3. The name and address of the nondomestic user responsible;

4. The reason(s) why the incident occurred;

5. A description of the corrective actions taken; and

6. An examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

E. Influent, Effluent and Biosolids Monitoring Results

The Discharger shall evaluate the influent, effluent and biosolids monitoring results as specified in Appendix H-4 in preparation of this report. The Discharger shall retain the analytical laboratory reports with the Quality Assurance and Quality Control (QA/QC) data validation and make these reports available upon request.

This section shall include:

1. Description of the sampling procedures and an analysis of the results (see Appendix H-4 for specific requirements);
2. Tabular summary of the compounds detected (compounds measured above the detection limit for the analytical method used) for the monitoring data generated during the reporting year as specified in Appendix H-4;
3. Discussion of the investigation findings into any contributing sources of the compounds that exceed NPDES limits; and
4. Graphical representation of the influent and effluent metal monitoring data for the past five years with a discussion of any trends.

F. Inspection, Sampling and Enforcement Programs

This section shall include at a minimum the following information:

1. Inspections: Summary of the inspection program (e.g., criteria for determining the frequency of inspections and inspection procedures);

2. Sampling Events: Summary of the sampling program (e.g., criteria for determining the frequency of sampling and chain of custody procedures); and

3. Enforcement: Summary of Enforcement Response Plan (ERP) implementation including dates for adoption, last revision and submission to the Regional Water Board.

G. Updated List of Regulated SIUs

This section shall contain a list of all of the federal categories that apply to SIUs regulated by the Discharger. The specific categories shall be listed including the applicable 40 CFR subpart and section, and pretreatment standards (both maximum and average limits). Local limits developed by the Discharger shall be presented in a table including the applicability of the local limits to SIUs. If local limits do not apply uniformly to SIUs, specify the applicability in the tables listing the categorical industrial users (CIUs) and non-categorical SIUs. Tables developed in Sections 7A and 7B can be used to present or reference this information.

1. CIUs - Include a table that alphabetically lists the CIUs regulated by the Discharger as of the end of the reporting period. This list shall include:

    a. Name;

    b. Address;

    c. Applicable federal category(ies);

    d. Reference to the location where the applicable Federal Categorical Standards are presented in the report;

    e. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

    f. Information, calculations and data used to determine the limits for those CIUs for which a combined waste stream formula is applied.

2. Non-categorical SIUs - Include a table that alphabetically lists the SIUs not subject to any federal categorical standards that were regulated by the Discharger as of the end of the reporting period. This list shall include:

    a. Name;

b. Address;

c. A brief description of the type of business;

d. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

e. Indicate the applicable discharge limits (e.g., different from local limits) to which the SIUs are subject and reference to the location where the applicable limits (e.g., local discharge limits) are presented in the report.

H. SIU (categorical and non-categorical) Compliance Activities

The information required in this section may be combined in the table developed in Section 7 above.

1. **Inspection and Sampling Summary:** This section shall contain a summary of all the SIU inspections and sampling activities conducted by the Discharger and sampling activities conducted by the SIU over the reporting year to gather information and data regarding SIU compliance. The summary shall include:

   a. The number of inspections and sampling events conducted for each SIU by the Discharger;

   b. The number of sampling events conducted by the SIU. Identify SIUs that are operating under an approved Total Toxic Organic Management Plan;

   c. The quarters in which the above activities were conducted; and

   d. The compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:

      (1) Consistent compliance;

      (2) Inconsistent compliance;

      (3) Significant noncompliance;

      (4) On a compliance schedule to achieve compliance (include the date final compliance is required);

      (5) Not in compliance and not on a compliance schedule; and

      (6) Compliance status unknown, and why not.

2. **Enforcement Summary:** This section shall contain a summary of SIU compliance and enforcement activities during the reporting year. The summary may be included in the summary

table developed in section 8A and shall include the names and addresses of all SIUs affected by the actions identified below. For each notice specified in enforcement action "i" through "iv," indicate whether it was for an infraction of a federal or local standard/limit or requirement.

a. Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

b. Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

c. Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

d. Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

e. Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty;

f. Order to restrict/suspend discharge to the Discharger; and

g. Order to disconnect the discharge from entering the Discharger.

3. July-December Semiannual Data: For SIU violations/noncompliance during the semiannual reporting period from July 1 through December 31, provide the following information:

a. Name and facility address of the SIU;

b. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

c. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

d. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

e. For violations/noncompliance identified in the reporting period, provide:

(1) The date(s) of violation(s);

(2) The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

(3) A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

I. Baseline Monitoring Report Update

This section shall provide a list of CIUs added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain the information specified in 40 CFR 403.12(b). For each new CIU, the summary shall indicate when the BMR was due; when the CIU was notified by the Discharger of this requirement; when the CIU submitted the report; and/or when the report is due.

J. Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to:

1. Legal authority;
2. Local limits;
3. Monitoring/ inspection program and frequency;
4. Enforcement protocol;
5. Program's administrative structure;
6. Staffing level;
7. Resource requirements;
8. Funding mechanism;
9. If the manager of the Discharger's pretreatment program changed, a revised organizational chart shall be included; and
10. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

K. Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the total expenses required to implement the pretreatment program. A brief discussion of the source(s) of funding shall be provided. In addition, the Discharger shall make available upon request specific details on its pretreatment program expense amounts such as for personnel, equipment, and chemical analyses.

L. Public Participation Summary

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(viii). If a notice was not published, the reason shall be stated.

M. Biosolids Storage and Disposal Practice

This section shall describe how treated biosolids are stored and ultimately disposed. If a biosolids storage area is used, it shall be described in detail including its location, containment features and biosolids handling procedures.

N. Other Pollutant Reduction Activities

This section shall include a brief description of any programs the Discharger implements to reduce pollutants from nondomestic users that are not classified as SIUs. If the Discharger submits any of this program information in an Annual Pollution Prevention Report, reference to this other report shall satisfy this reporting requirement.

O. Other Subjects

Other information related to the Pretreatment Program that does not fit into any of the above categories should be included in this section.

P. Permit Compliance System (PCS) Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information:

1. Discharger's name,

2. NPDES Permit number,

3. Period covered by the report,

4. Number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule,

5. Number of notices of violation and administrative orders issued against SIUs,

6. Number of civil and criminal judicial actions against SIUs,

7. Number of SIUs that have been published as a result of being in SNC, and

8. Number of SIUs from which penalties have been collected.

APPENDIX H-2

REQUIREMENTS FOR JANUARY-JUNE PRETREATMENT SEMIANNUAL REPORT

The pretreatment semiannual report is due on July 31 for pretreatment program activities conducted from January through June unless an exception has been granted by the Regional Water Board's Executive Officer (e.g., pretreatment programs without any SIUs may qualify for an exception to the pretreatment semiannual report). Pretreatment activities conducted from July through December of each year shall be included in the Pretreatment Annual Report as specified in Appendix H-1. The pretreatment semiannual report shall contain, at a minimum the following information:

A. Influent, Effluent and Biosolids Monitoring

The influent, effluent and biosolids monitoring results shall be evaluated in preparation of this report. The Discharger shall retain analytical laboratory reports with the QA/QC data validation and make these reports available upon request. The Discharger shall also make available upon request a description of its influent, effluent and biosolids sampling procedures. Violations of any parameter that exceed NPDES limits shall be identified and reported. The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed.

B. Significant Industrial User Compliance Status

This section shall contain a list of all SIUs that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. For the reported SIUs, the compliance status for the previous semiannual reporting period shall be included. Once the SIU has determined to be out of compliance, the SIU shall be included in subsequent reports until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

1. Name and facility address of the SIU;

2. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

3. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

4. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

5. For violations/noncompliance identified in the reporting period, provide:

    a. The date(s) of violation(s);

    b. The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

c. A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

C. Discharger's Compliance with Pretreatment Program Requirements

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report or Pretreatment Compliance Inspection (PCI) Report. It shall contain a summary of the following information:

1. Date of latest PCA or PCI report;

2. Date of the Discharger's response;

3. List of unresolved issues; and

4. Plan(s) and schedule for resolving the remaining issues.

APPENDIX H-3

SIGNATURE REQUIREMENTS FOR PRETREATMENT ANNUAL AND SEMIANNUAL REPORTS

The pretreatment annual and semiannual reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Discharger [POTW - 40 CFR 403.12(m)]. Signed copies of the reports shall be submitted to the U.S. EPA, the State Water Board, and the Regional Water Board at the following addresses unless the Discharger is instructed by any of these agencies to submit electronic copies of the required reports:

Pretreatment Program Reports
Clean Water Act Compliance Office (WTR-7)
Water Division
Pacific Southwest Region
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105-3901

Submit electronic copies only to State and Regional Water Boards:
Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality-15th Floor
1001 I Street
Sacramento, CA 95814
DMR@waterboards.ca.gov
NPDES_Wastewater@waterboards.ca.gov

Pretreatment Coordinator
NPDES Wastewater Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
(Submit the report as a single Portable Document Format (PDF) file to the Pretreatment Coordinator's folder in the Regional Water Board's File Transfer Protocol (FTP) site. The instructions for using the FTP site can be found at the following internet address:
http://www.waterboards.ca.gov/sanfranciscobay/publications_forms/documents/FTP_Discharger_Guide-12-2010.pdf.)

APPENDIX H-4

REQUIREMENTS FOR INFLUENT, EFFLUENT AND BIOSOLIDS MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and biosolids at the frequency shown in **the pretreatment requirements table** of the Monitoring and Reporting Program (MRP, Attachment E). When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both the influent and effluent monitoring requirements of the MRP and the Pretreatment Program. The Pretreatment Program monitoring reports as required in Appendices H-1 and H-2 shall be transmitted to the Pretreatment Program Coordinator.

A. Reduction of Monitoring Frequency

The minimum frequency of Pretreatment Program influent, effluent, and biosolids monitoring shall be dependent on the number of SIUs identified in the Discharger's Pretreatment Program as indicated in Table H-1.

Table H-1: Minimum Frequency of Pretreatment Program Monitoring

Number of SIUs	Minimum Frequency
< 5	Once every five years
> 5 and < 50	Once every year
> 50	Twice per year

If the Discharger's required monitoring frequency is greater than the minimum specified in Table H-1, the Discharger may request a reduced monitoring frequency for that constituent(s) as part of its application for permit reissuance if it meets the following criteria:

The monitoring data for the constituent(s) consistently show non-detect (ND) levels for the effluent monitoring and very low (i.e., near ND) levels for influent and biosolids monitoring for a minimum of eight previous years' worth of data.

The Discharger's request shall include tabular summaries of the data and a description of the trends in the industrial, commercial, and residential customers in the Discharger's service area that demonstrate control over the sources of the constituent(s). The Regional Water Board may grant a reduced monitoring frequency in the reissued permit after considering the information provided by the Discharger and any other relevant information.

B. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required sampling and test methods listed in **the pretreatment table** of the MRP. Any test method substitutions must have received prior written Executive Officer approval. Influent and effluent sampling locations shall be the same as those sites specified in the MRP.

The influent and effluent samples should be taken at staggered times to account for treatment plant detention time. Appropriately staggered sampling is considered consistent with the requirement for

collection of effluent samples coincident with influent samples in Section III.A.3.a(2) of Attachment G. All samples must be representative of daily operations. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated ML, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following report elements should be used to submit the influent and effluent monitoring results. A similarly structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

1. Sampling Procedures, Sample Dechlorination, Sample Compositing, and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. The Discharger shall make available upon request its sampling procedures including methods of dechlorination, compositing, and data validation.

2. A tabulation of the test results for the detected parameters shall be provided.

3. Discussion of Results – The report shall include a complete discussion of the test results for the detected parameters. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

C. Biosolids Monitoring

Biosolids should be sampled in a manner that will be representative of the biosolids generated from the influent and effluent monitoring events except as noted in (3. below. The same parameters required for influent and effluent analysis shall be included in the biosolids analysis. The biosolids analyzed shall be a composite sample of the biosolids for final disposal consisting of:

1. Biosolids lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or

2. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or

3. Dewatered biosolids - daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) each truckload, and shall be combined into a single 5- day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to biosolids is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to biosolids, is recommended as a guidance for analytical methods.

In determining if the biosolids are a hazardous waste, the Discharger shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, sections 66261.10 to 66261.24 and all amendments thereto.

The following report elements should be used to submit the biosolids monitoring results. A similarly structured form may be used but will be subject to Regional Water Board approval. The results shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

- Sampling Procedures and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. The Discharger shall make available upon request its biosolids sampling procedures and data validation methods.

- Test Results – Tabulate the test results for the detected parameters and include the percent solids.

- Discussion of Results – Include a complete discussion of test results for the detected parameters. If the detected pollutant(s) is reasonably deemed to have an adverse effect on biosolids disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide a summary table presenting any influent, effluent or biosolids monitoring data for non-priority pollutants that the Discharger believes may be causing or contributing to interference, pass through or adversely impacting biosolids quality.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2015-0019

WASTE DISCHARGE REQUIREMENTS for:

TOMALES VILLAGE COMMUNITY SERVICES DISTRICT
TOMALES VILLAGE COMMUNITY SERVICES DISTRICT WASTEWATER TREATMENT PLANT
TOMALES, MARIN COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board or Board), finds that:

1. **Discharger.** Tomales Village Community Services District (the Discharger) is a government agency dedicated to operating and maintaining the Tomales Village Community Services District Wastewater Treatment Plant (Facility) that serves approximately 100 residences in Tomales, less than ten commercial businesses and restaurants within the community, and the Shoreline Unified School District located in Tomales. The Discharger is legally responsible for the wastewater system and the discharges of wastewater to land regulated by this Order and for compliance with this Order. The wastewater system is managed and operated by wastewater treatment operators employed by the Discharger.

2. **Purpose of Order.** The purpose of this Order is to update Waste Discharge Requirements (WDRs) to reflect current conditions at the Facility, including, but not limited to, the following:

   a. Updated regulatory requirements;
   b. Facility improvements, including conversion into a three-stage treatment pond system, installation of a fats, oils, and grease interceptor, and upgrade of the discharge system;
   c. Permitted change from seasonal to conditional discharge to the discharge area (by this Order);
   d. Discontinued discharge of wastewater to the school district irrigation ponds; and
   e. Changes to the self-monitoring program since the WDRs were last updated in 1986.

   This Order also rescinds previous Water Board Order No. 86-086.

3. **History of the Order.** The Discharger previously treated and discharged wastewater pursuant to Order No. 86-086, Water Reclamation Requirements for North Marin County Water District - Tomales Sewage Treatment Plant, Town of Tomales, Marin County, adopted on November 19, 1986. The previous owner and operator of the Facility, the North Marin County Water District, transferred ownership of the Facility to the Discharger on April 20, 1999.

4. **Report of Waste Discharge**. The Discharger submitted a renewed Report of Waste Discharge (ROWD) for the Facility, dated September 28, 2001, to apply for reissuance of the WDRs to reflect the operational changes in the Facility's wastewater system. The Facility operated in compliance with the renewed ROWD under California Water Code (CWC) section 13264. This Order addresses the changes described in the 2001 ROWD and subsequent changes and upgrades to the original system. This Order authorizes WDRs for the system that is in place and operating at the time of this Order.

5. **Waste Discharge Requirements**. This Order prescribes WDRs for the current, upgraded Facility and supersedes Order No. 86-086.

Site Description and Location

6. **Discharge Origin and Facility Location**
   a. **Tomales**. The 0.33 square-mile town of Tomales (Tomales), including the Shoreline Unified School District, is situated in the Coast Range of northwest Marin County, approximately three miles northeast

of Tomales Bay. Tomales is located in between Stemple Creek, approximately 1.5 miles to the north, and Keys Creek immediately to the south.

b. Facility Location. The Facility is located northeast of the intersection of State Route 1 and Tomales-Petaluma Road, in northwestern Marin County, within Tomales.

Attachment A of this Order is a plan view drawing depicting the location and boundaries of the Facility.

Wastewater System Design, Construction, and Operation

7. Wastewater Facility Overview. For purposes of this Order, the wastewater system is comprised of all equipment, control, and monitoring systems located on the Facility that provide collection, conveyance, treatment, storage, and discharge of wastewater entering the Facility. For purposes of this Order, the Facility includes both the parcel where the three-stage treatment pond system is located and the storage ponds and spray irrigation field (discharge area) located approximately 3,600 feet south and across Tomales-Petaluma Road.

Attachment B of this Order is a flow diagram illustrating the current wastewater treatment and discharge processes and flows.

8. Wastewater Sources and Flows. Wastewater is generated from the Tomales residences and the Shoreline Unified School District as sanitary wastewater. The design flow capacity of the three-stage treatment pond system, and average dry weather flow rate authorized by this Order, is 43,000 gallons per day (GPD).

9. Collection System. The collection system consists of approximately 2.6 miles of six- and eight-inch-diameter gravity sewer mains. The collection system includes one lift station equipped with two grinder sewage pumps capable of delivering 22 gallons per minute of influent. One pump acts as a standby unit and is used in the event that the primary pump becomes inoperable. The collection system is permitted under the General Order for Sanitary Sewer Systems (see Finding 36).

Attachment C of this Order is a map of the district boundaries and collection system.

10. Comminutor. Collected wastewater influent flows first into the comminutor for screening of larger solids as primary treatment. The comminutor cuts and shreds particles in the influent, reducing the material to a size that will pass through ¼-inch wide slots. On a weekly basis, operators manually remove the larger solids screened out by the comminutor (see Discharge Specification B.11).

11. Fats, Oils, and Grease Interceptor. Wastewater is conveyed downstream for further primary treatment in a 2000-gallon Selvage three-chamber fats, oils, and grease (FOG) interceptor unit, after the comminutor and in line before the three-stage treatment pond system. The FOG interceptor screens and detains solids and FOG before the influent goes to the first pond of the three-pond system. The FOG interceptor is serviced quarterly: a licensed septic waste hauler removes accumulated solids and takes them offsite for disposal (see Discharge Specification B.11).

12. Three-stage Treatment Pond System

a. Facility Upgrade. In spring 2010, the Discharger completed improvements to the treatment facilities, resulting in three lined and mechanically-aerated ponds. The Discharger converted the original sand filter in existence in 2010 into the first treatment pond. The treatment lagoon in existence in 2010 was divided into two additional treatment ponds, plumbed in series with the first pond. All three ponds were lined with a 30-year Hypalon (chlorosulfonated polyethylene synthetic rubber) liner. The combined capacity of the three ponds is approximately 1.3 million gallons, with two feet of freeboard.

b. Pond Order. The first pond receives the primary influent from the FOG interceptor. The first pond is the first stage of the treatment pond system and provides secondary treatment through aeration and settling. The second pond increases the secondary treatment through further aeration and settling. The third pond, though also equipped with an aerator, is usually not aerated: it passively functions as the settling and polishing pond before conveyance of the secondary effluent to the storage ponds.

c. Backup Aeration System. The three ponds of the new three-stage treatment pond system are each equipped with an aerator. The system incorporates a backup aeration system: in the event that an aerator becomes inoperable, the order of the ponds may be reconfigured such that the remaining functioning aerators in the pond can provide optimal mixing characteristics and oxygen to prevent the pond from becoming anaerobic and causing an odor problem. Further, the stage order of all three ponds may be reconfigured according to Attachment D to accommodate for any temporal dysfunctions or non-operation in any part of the system.

Attachment D of this Order is an illustration of the components and specifications and an overview of the permitted configurations of the three-stage treatment pond system.

13. **Lift Station**. The Facility has one lift station, located at the intersection of State Route 1 and Tomales-Petaluma Road. The lift station pumps secondary effluent from the three-stage treatment pond system to the storage ponds. The Facility uses two Gould 5CLC 15 horsepower pumps, which are set to operate on a rotating basis for equal wear and redundancy, and can be used in tandem if necessary.

14. **Storage Ponds**. The Facility pumps treated secondary effluent from the three-stage treatment pond system to the two storage ponds: West Pond and East Pond. The effluent may be directed into either or both ponds at any time. The two ponds are both clay-lined ponds, with a combined maximum storage capacity of 10.1 million gallons. The storage ponds occupy a 10-acre site south of the Tomales-Petaluma Road, south of Keys Creek and the three-stage treatment pond system, and directly north of the discharge area.

15. **Disinfection.** A diffuser located in the discharge pipe mixes liquid sodium hypochlorite into the secondary effluent, conveyed from the storage pond(s), for disinfection before discharge. The secondary effluent and chlorine solution are mixed in the discharge pipe for a contact period of approximately twenty-seven minutes. The disinfected secondary effluent is then pumped onto the discharge area via spray irrigation.

16. **Discharge Area.** Disinfected secondary effluent is discharged to land via spray irrigation onto a 21-acre vegetated gently sloping hillside field, fenced and gated, located downhill of the storage ponds, and about 3,600 feet south of the wastewater treatment ponds. This irrigation field is also known as the discharge area for the Facility. The irrigation field is occasionally grazed by neighboring steers.

17. **Collection Ditch**. A runoff collection ditch surrounding the irrigation field prevents effluent runoff from discharging offsite and also intercepts the rainfall run-on from adjacent fields. A collection sump at the base of the irrigation field will send an alarm to the programmable logic controller to automatically shut off the irrigation pumps if the water level reaches a level predefined by the operators and specified in the Operation and Maintenance Manual.

18. **Discharge System**. The irrigation system has eight zones fitted with seven large nozzle type guns, with one converted to two lines with an array of 35 Rain Bird sprinklers. Each of the eight zones is rated to deliver 80-100 gallons per minute, spreading the effluent over a large area. Each zone can be programmed to run multiple cycles. The entire irrigation system is integrated into the system-wide Supervisory Control and Data Acquisition (SCADA) system with predefined alarm call-out points and remote access for emergency shutdown or reconfiguration of irrigation time and cycles.

19. Discharge Operations

a. **Past Seasonal Operation**. Order No. 86-086 authorized seasonal operation of the Facility's irrigation field. Under that order, reclaimed water could not be applied during the wet weather season (November 15 through April 15, as defined by that order), when the ground was saturated, or during periods when rainfall or runoff from adjacent land could occur. The irrigation system was operated under Order No. 86-086 via an automatic timer during the dry season and discharged approximately 25,000 GPD on average, for the months when discharge occurred, based on 2012-2013 daily and weekly effluent discharge data.

b. **"1998 Winter Irrigation Plan" for Emergency Discharges.** In 1998, Water Board staff approved the Facility's "1998 Winter Irrigation Plan," which allowed for the release of emergency discharges via spray irrigation from the storage ponds to the irrigation field during the wet weather season (November 15 through April 15). These releases have allowed for the maintenance of safe water levels in the storage ponds from 1998 until the time of this Order.

c. **Change from Seasonal to Conditional Discharge**. This Order rescinds the Winter Irrigation Plan (and Order No. 86-086) and authorizes a change in the discharge system operation from seasonal discharge to conditional discharge to preclude uncontrolled runoff and the need for emergency discharge during rainfall periods and to maintain appropriate holding capacity for the storage ponds. The conditional discharge operation allows the Discharger to manage discharges of treated wastewater in accordance with prevailing environmental conditions and notification requirements instead of the former fixed-calendar basis. This Order includes requirements for control of all discharges, including complete treatment, final effluent quality in compliance with the Order, and assessment of soil, weather, and discharge conditions to prevent ponding or runoff. Discharge from the storage ponds to the irrigation field is not authorized if it is determined that ponding or runoff from the site would occur (see Discharge Specification B.3).

20. Recycled Water Feasibility Study. In 2009, the Discharger conducted a Wastewater Treatment Plant Water Reclamation & Reuse Tertiary Treatment Feasibility Study. The study was initiated to assess the feasibility for a proposed Tertiary Treatment and Recycling Project, a joint plan with the Shoreline Unified School District to construct a filtration and disinfection system to produce tertiary treated water for recycling and reuse to supplement the school's water needs and to help replenish the groundwater in the Tomales Bay watershed. The Discharger concluded, based on the results of the study, that the project is infeasible given the project capital outlay.

Surrounding Environment of the Facility

21. a. Facility Characteristics. The Facility is located on property that is primarily characterized by agricultural or rural land use, consisting of chaparral, oak and bay woodland, and coastal scrub vegetation types. The geology of the 0.33 square-mile Tomales area is referred to as the "Franciscan Complex," which is generally described as an overlying 10- to 15 foot-thick layer of unconsolidated materials and soil with colluvium accumulation in the valleys and hillsides. In the proximity of Tomales, an undifferentiated Pliocene Marine geologic formation, known as "Wilson Grove," overlies the Franciscan Complex. The 135 square-mile Wilson Grove Formation Highlands groundwater basin underlies the Facility.

b. Climate and Surroundings. Tomales lies within the Walker Creek watershed, which receives approximately 35 inches of precipitation per year, consistent with the Mediterranean climate of the central coast of California. The watershed receives higher-intensity rain from November through March, comprising 85 percent of the annual rainfall within the watershed. Walker Creek, a tributary to Tomales Bay, is located 1.5 miles from the southwestern boundary of the Facility. Keys Creek, a

tributary to Walker Creek, lies immediately south of the three-stage treatment pond system. See Finding 33 for further information on surrounding waters of the State.

22. Groundwater Quality Characteristics. A statewide groundwater ambient monitoring and assessment program (GAMA) collects data for local and area-wide groundwater quality characterization. Searching in GAMA for the one-mile radius around the Facility returned 41 sampling events conducted at 10 wells from 1999 to 2014. The values for nitrate as nitrate ranged from 0 to 19 mg/L, with a median value of 2.0 mg/L. The drinking water maximum contaminant level for nitrate as nitrate is 45 mg/L. The underlying Wilson Grove Formation Highlands groundwater basin is listed with existing beneficial uses of municipal and domestic water supply as well as agricultural water supply (see Finding 33). The groundwater basin is listed with potential beneficial uses of industrial process water supply and industrial service water supply.

Discharge Characteristics

23. Discharges. The waste discharges to land addressed by this Order consist of domestic and commercial wastewater from the approximately 100 residences of Tomales and the 500-student Shoreline Unified School District located at 10 John Street in Tomales. As described above, secondary effluent is conveyed from the three-stage treatment pond system to the two storage ponds located to the south. The secondary effluent is then disinfected and discharged from the storage ponds as irrigation for the adjacent 21-acre vegetated field. No effluent is discharged via any other system or process, and there is no discharge to surface water.

24. Discharge Quantity. The current average inflow to the Facility is approximately 16,900 GPD, based on 2012-2013 data. The design inflow capacity of the three-stage treatment pond system as provided in the Discharger's Operation and Maintenance Manual and authorized by this Order is 43,000 GPD on an average dry weather flow basis.

This Order authorizes an annual wastewater flow limit of 15,738,000 gallons per year, based on an average dry weather flow value of 43,000 GPD and 366 days. For reference, wastewater flows (influent and effluent, when applicable) from January 2012 through December 2013 are tabulated below:

Month-Yr	Influent Month Total (gallons)	Influent Average Day (gallons)	Influent Peak Day (gallons)	Effluent Month Total (gallons)
Jan-12	534,000	17,200	46,000	0
Feb-12	417,000	14,900	18,000	0
Mar-12	696,000	23,200	61,000	0
Apr-12	649,400	21,600	35,600	0
May-12	474,000	15,300	20,000	784,000
Jun-12	407,000	13,600	17,000	990,000
Jul-12	436,000	14,000	18,000	1,229,000
Aug-12	389,000	13,000	16,000	751,000
Sep-12	426,000	14,200	18,000	508,000
Oct-12	513,000	16,500	19,000	0
Nov-12	611,000	20,400	76,000	0
Dec-12	1,240,400	40,000	87,000	0
Jan-13	621,000	20,000	30,000	0
Feb-13	380,000	13,600	21,000	0

Mar-13	415,000	13,400	21,000	0
Apr-13	459,000	15,300	25,000	262,000
May-13	424,000	13,700	16,000	761,000
Jun-13	414,000	13,800	19,000	753,000
Jul-13	759,000	24,500	28,000	979,000
Aug-13	426,000	13,700	17,000	1,006,000
Sep-13	411,000	13,700	17,000	428,000
Oct-13	432,000	13,900	17,000	561,000
Nov-13	393,000	13,100	15,000	0
Dec-13	428,000	13,800	15,000	0

"0" indicates no effluent discharge to land occurred during the entire month.

25. Discharge Quality for 2012-2013. Results from routine sampling (per the Self-Monitoring Program of Order No. 86-086) of the final effluent discharged into the irrigation field are summarily presented below:

Month-Yr	**pH range**	**Dissolved Oxygen range (mg/L)**	**Chemical Oxygen Demand range (mg/L)**	**Total Coliforms range (MPN/100ml H_2O)**
Order No. 86-086 limits	*≤ 6*	*≥ 1.0*	*≤ 210*	*≤ 240*
May-12	8.1 - 8.9	2.1 - 3.2	120.0 – 170.0	< 2 – 4
Jun-12	7.9 - 8.5	3.0 - 30.0	130.0 – 220.0	< 2
Jul-12	8.2 - 9.1	2.0 - 3.7	170.0 – 250.0	14 – 240
Aug-12	7.9 - 9.0	3.0 - 3.6	190.0 – 270.0	< 2 – 22
Sep-12	6.0 - 9.7	NA	130.0 – 220.0	4 – 170
Apr-13	8.4 - 8.9	2.2 - 2.3	88	< 2
May-13	8.8 - 9.6	2.3 - 4.8	120.0 – 130.0	< 2 – 240
Jun-13	8.7 - 9.2	2.0 - 4.6	120.0 – 130.0	120 – 130
Jul-13	8.4 - 9.5	1.0 - 4.3	3.5 – 130.0	2 – 50
Aug-13	8.5 - 9.5	2.0 - 2.8	170.0 – 290.0	< 2 – 59
Sep-13	8.7 - 9.6	2.0 - 2.1	185.0 – 470.0	4 – 900
Oct-13	9.7 – 9.9	3.5 – 5.8	230.0 – 510.0	< 2 - 26

NA denotes 'not available' because the information is missing in the monthly Self-Monitoring Report.

Exceedances. These sampling results indicate several instances of exceedances. For the sampling period of January 2012 to December 2013, the Discharger commented on and addressed the exceedance, as a component of the monthly Self-Monitoring Report, citing the sampling date and location, specific non-compliance event, probable cause (if determined by the Discharger), and the corresponding corrective action. Since the upgrade to the entire wastewater system in spring 2010, there has been no evidence of repeating patterns of either violations or violations without corrective actions. Water Board staff reviewed the self-monitoring reports, found the corrective actions taken to be acceptable, and determined that no further regulatory actions are necessary.

Monitoring

26. Remote System Monitoring. The Facility includes a remote wastewater monitoring SCADA system. The SCADA system provides continuous monitoring of three site locations: the three-stage treatment pond system, the lift station, and the irrigation field and storage ponds. The SCADA system monitors and controls the pond levels, the starting and stopping of aerators and lift pumps, the timing of the irrigation, and transmits notification of any pre-set alarms to the operators. SCADA alarms include, but are not limited to, high/low pond levels for each pond, pump fail, aerator fail, lift station high/low level, power fail, low pressure force main and discharge pipes, irrigation station fail, and others. The SCADA dialer will continue phoning the alarm through a series of priority numbers until the alarm is acknowledged. The alarms are called out to the operators that are on-call full time, 24-hours per day, via voice modem, and alarms are addressed immediately by the operators from their remote location. If the situation cannot be addressed immediately, the operators are dispatched immediately to the site.

27. Wastewater Monitoring. Wastewater flows are currently monitored for total daily flow into the stage one treatment pond and daily effluent discharge (when applicable) from the storage ponds into the irrigation field. This Order contains a Self-Monitoring Program (see Attachment E) that requires wastewater quantity and quality monitoring at defined points throughout the wastewater system in order to ensure proper operation and performance of the system and to document compliance with these requirements.

Operation and Maintenance

28. Operation and Maintenance. At the time of this Order, the wastewater system is managed by operators employed by the Discharger. This Order requires the wastewater system to be operated and maintained by certified wastewater treatment plant operators that are experienced in and knowledgeable of the wastewater system design and proper operation. The certified wastewater treatment plant operator may be an employee of the Discharger or a contract employee.

29. Operation and Maintenance Program. An Operation and Maintenance (O&M) Program is needed in order to ensure that all aspects of the wastewater system are properly operated and maintained. The O&M Program must include descriptions of all wastewater system components and equipment, accurately dimensioned site plans identifying the locations of all components and relevant site features (e.g., buildings, wells, drainage ways, roads, etc.), recommended strategies and procedures for system operations in accordance with system designs and discharge requirements, procedures and criteria for process control monitoring, maintenance activities necessary to ensure continuous proper operation of the wastewater system, and identification of persons responsible for operation and maintenance of the wastewater system and how these persons can be contacted. This Order requires development and implementation of an O&M Program acceptable to the Executive Officer and preparation and submittal of an O&M Manual that fully describes the O&M Program for the current system.

Applicable Plans, Policies, and Other Authorities

30. California Water Code. This Order serves as WDRs pursuant to CWC Division 7, Chapter 4, Article 4 (commencing with section 13260).

31. Basin Plan. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law and the U.S. EPA, where required.

32. Basin Plan Implementation. The Basin Plan contains water quality objectives and beneficial uses for waters of the State within the San Francisco Bay Region and an Implementation Plan. This Order includes prohibitions and discharge requirements to protect existing and potential beneficial uses of waters of the State, in the surrounding area of the Facility and its operations, as well as to protect public health and the environment.

33. Beneficial Uses of Waters of the State. The Discharger discharges the final effluent onto land, not into surface water(s). The final effluent is discharged onto the irrigation field via spray irrigation. The irrigation field is located over the Wilson Grove Formation Highlands groundwater basin. The existing and potential beneficial uses of Wilson Grove Formation Highlands groundwaters, underlying the area of Tomales, as set forth in the Basin Plan include the following:

a. Municipal and domestic water supply,
b. Industrial process water supply,
c. Industrial service water supply, and
d. Agricultural water supply.

At the time of this Order, there are no known domestic water supply wells less than or equal to 100 feet from any point of the discharge area.

34. Shellfish Protection Act. In Water Board Resolution No. 94-018, as a result of the 1993 Shellfish Protection Act, the Board identified Tomales Bay as an area where commercial shellfish growing areas are threatened. This Order is consistent with upholding the Shellfish Protection Act in authorizing WDRs for a facility that is configured for zero discharge to surface waters and to protect water quality for the preservation of shellfish and shellfish habitats.

35. a. Tomales Bay TMDL. Tomales Bay and its tributaries have been identified as impaired and have been placed on the federal Clean Water Act 303(d) list of impaired waters for nutrients, sediment, mercury, and pathogens. The Water Board is required to establish a Total Maximum Daily Load (TMDL) for these pollutants. The U.S. EPA approved the TMDL for pathogens in the Tomales Bay watershed on February 8, 2007. The basis for the pathogen listing includes exceedances of the numeric water quality objectives for fecal and total coliforms for the shellfish and recreational beneficial uses. Tomales Bay supports the third largest shellfish harvesting area in the State. The waste material at this Facility could potentially be a source of nutrients and pathogens to the watershed if an unintended release occurred (e.g., as a result of flooding or a mechanical failure). The Discharger is aware of the TMDL, and the Facility is configured to have zero discharge to surface waters. This Order prohibits discharges of treated wastewater to surface waters to prevent any additional impacts to Tomales Bay.

b. Facility Upgrade Addresses Historical Concern for Surface Water Quality Impacts. The Facility is configured for zero discharge to surface waters. In 2007, in response to concerns about the adjacent Keys Creek, the Discharger contracted an engineer to conduct seepage tests on the treatment lagoon area (converted to two treatment ponds in 2010) to evaluate the present and future effects of the natural migration of Keys Creek. The results of the third-party observation-based assessment indicated no significant level of seepage impact from the natural migration of Keys Creek to the treatment pond system for another 80-100 years if nothing changes. Additionally, in spring 2010, the Facility implemented improvements to the Facility that included conversion to the three-stage treatment pond system and lining all three treatment ponds with a manufactured, impermeable 30-year Hypalon liner. Improvements also included installing a sub-drain below each treatment pond, with plumbing to direct any pond or external water collection into the third pond of the three-stage treatment pond system. The added liner and sub-drain prevent the natural erosion of Keys Creek from impacting the stability of the treatment pond system. These improvements also preclude any unintended discharges from the treatment pond system area into the surface waters of the State.

36. General Order for Sanitary Sewer Systems. Order No. 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (General Order), applies to all public agencies that own or operate sanitary sewer systems greater than one mile in length. This finding serves to acknowledge that the Discharger's collection system is enrolled and regulated under the General Order.

Antidegradation Policy Analysis

37. Antidegradation Policy. State Water Board Resolution No. 68-16 (the Antidegradation Policy) requires that the Regional Water Board, in regulating the discharge of waste, maintain the high quality of waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution No. 68-16 also requires that any activity which produces wastes and discharges waste to existing high quality water(s) be required to meet WDRs that will result in the best practicable treatment or control of the discharge necessary to ensure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained. Resolution No. 68-16 prohibits degradation of water quality as it existed in 1968, or at any time thereafter that water quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for regulatory actions that result in a significant increase in pollutant loadings.

38. Antidegradation Analysis. Board staff completed an analysis of the potential for the Facility to degrade surface water and groundwater. The analysis is summarized here and presented in full in a separate technical memorandum that is available at the Board's website. Board staff concluded that the authorized discharge to land will not unreasonably affect present and anticipated beneficial uses of the groundwater or nearby surface waters and will not result in water quality less than that prescribed in the Antidegradation Policy.

The analysis considered permitted treatment plant wastewater flows of 43,000 GPD, soil characteristics, groundwater and effluent water quality data, groundwater level data, and pollutant loading rates. The analysis determined that the effluent may produce localized, minor effects that can be assimilated in the subsurface soils of the discharge area and that the discharges conducted in compliance with this Order will adequately protect water quality and the beneficial uses of the receiving waters.

a. Protection of Surface Waters. This Order prohibits discharges either directly or via subsurface migration to surface waters, so existing and potential beneficial uses of nearby surface waters will not be affected. The Facility's three-stage treatment pond system is fitted with a manufactured, impermeable 30-year Hypalon (chlorosulfonated polyethylene synthetic rubber) lining for all three treatment ponds and a sub-drain system. The sub-drain is plumbed to direct any pond or external water collection into the third pond of the three-stage treatment pond system. The final disinfected effluent is discharged to land via spray irrigation at the irrigation field. Based on the Facility's configuration to prevent any direct discharges to surface waters, there is no reason to believe that existing water quality of nearby surface waters will be reduced due to the implementation of this Order. Therefore, no antidegradation analysis is required for surface waters.

b. Protection of Groundwaters. The only permitted effluent discharge is to land via spray irrigation. The wastewater system treats domestic and commercial flows. There are no industrial sources discharging to the collection system. Treated effluent is discharged to the spray irrigation field where it either infiltrates into the ground, evaporates, or is taken up by plants. The subsurface soils in the discharge area have the assimilative capacity to sufficiently attenuate the wastewater constituents as the effluent travels through the soils, prior to reaching groundwater. Further, the irrigation field is surrounded by a perimeter ditch to prevent any offsite discharges, should runoff occur. The ditch is also equipped with a collection sump with a water level alarm, which will shut down all facility discharge operations if the water reaches a specified level of concern. The prior reported monthly monitoring data for the Facility

demonstrate that the Facility supports existing and potential beneficial uses of the waters of the State adjacent to and underlying the Facility site. This antidegradation analysis, as it relates to the protection of groundwaters, also illustrates that surface waters will be protected, in the event of any indirect subsurface discharges from groundwaters into surface waters. Due to the nature of the discharge (to land via irrigation) and the measures established for pollution prevention, the operations of this Facility under this Order are not expected to reduce existing high quality waters.

Safe Drinking Water Act

39. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order upholds that policy by requiring limits on discharges that will ensure groundwater does not exceed maximum contaminant levels designed to protect human health and that water is safe for domestic use.

California Environmental Quality Act (CEQA)

40. CEQA. The issuance of WDRs for the subject discharges is exempt from the provisions of CEQA pursuant to Title 14, Division 6, Chapter 3, Section 15301 (existing facilities) and Section 15302 (replacement or reconstruction) of the California Code of Regulations.

Notification and Public Meeting

41. Public Notice. The Board has notified the Discharger and interested persons of its intent to prescribe WDRs for the subject wastewater system and discharges and has provided them with an opportunity for a public hearing and to submit written views and recommendations.

42. Public Hearing. The Board, in a properly noticed public hearing, heard and considered all comments pertaining to these WDRs.

IT IS HEREBY ORDERED, that the Discharger, pursuant to the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The treatment, storage, or discharge of wastes shall not create a nuisance or pollution as defined in CWC section 13050.

2. Discharges of waste into or from the wastewater system other than as described in and authorized by this Order are prohibited.

3. There shall be no direct or indirect discharge to surface waters.

4. There shall be no discharge of waste that has not undergone the full treatment process, according to the flow schematic in Attachment B and the permitted treatment pond configurations as described in Attachment D, to groundwaters of the State from the Discharger's Facility.

5. The discharge of waste shall not degrade the quality of any groundwater used for domestic purposes or cause an increase or decrease in any quality parameter that would make groundwater unsuitable for any listed existing or potential beneficial use(s).

6. Wastewater shall not be allowed to flow from the discharge area via surface flow, airborne spray, or surfacing after percolation.

7. Discharge of treated wastewater to any land other than the designated discharge area is prohibited.

8. Migration of pollutants through subsurface transport from the discharge area(s) to waters of the State is prohibited.

9. Discharges of wastewater to the wastewater system in excess of the system operating hydraulic capacity or organic loading treatment capacity are prohibited.

B. DISCHARGE SPECIFICATIONS

1. Source Wastewaters. The only wastewater authorized by this Order to be discharged into the wastewater system consists of wastewater from commercial and residential domestic use in the Tomales area and the Shoreline Unified School District. The Discharger must apply for amended WDRs before accepting any other kind of wastewater.

2. Treatment and Storage Ponds

a. Freeboard. A minimum freeboard of two feet shall be maintained in the ponds at all times.

b. 100-Year Flood. The ponds shall be adequately protected from erosion, washout, and flooding from the maximum flood having a predicted frequency of once in 100 years.

c. Treatment Pond Lining. The treatment ponds shall be lined with a geotextile fabric or other materials with a permeability of no more than 10^{-6} cm/sec.

d. Treatment Pond Aerators. Each of the three aerated ponds (within the three-stage treatment pond system) shall be equipped with one or more aerators in order to provide sufficient aeration capacity to achieve biological stabilization of the wastewater discharged to the ponds, and to prevent the creation of anaerobic or nuisance conditions.

e. Treatment and Storage Ponds. Wastewater at any place about two feet from the water's edge of a treatment or storage pond shall not exceed the following limits in any grab sample:

	Measured parameter	Quality specification
1)	Dissolved Oxygen	2.0 mg/L, minimum
2)	Dissolved Sulfides*	0.1 mg/L, maximum
3)	pH	6.5 minimum

*Dissolved sulfides sampling is required only when dissolved oxygen concentration is below 2 mg/L.

3. Spray Discharge

a. Notification for "Off-season" Discharges. The Discharger shall provide e-mail notification to the Water Board and the California Department of Public Health prior to discharges outside the window of time between April 15 and November 30. These discharges are known as "off-season" discharges.

b. Operating Conditions. Discharges of wastewater to the designated discharge area shall not occur under any of the following conditions:

1) Rainfall within 72 hours before spray discharge,
2) Rainfall forecast within 72 hours of spray discharge,
3) Presence of ponded standing water,

4) Saturated soils, or
5) Increased potential of ponding or runoff.

c. Sprinklers. All sprinklers used in spray discharge shall be of the low trajectory type in order to minimize the potential for transmission of airborne spray beyond the perimeter of the spray field.

4. Authorized Wastewater Flows

a. **Wastewater System**. Collection of wastewater from the Tomales area into the Facility shall not exceed an average dry weather flow of 43,000 gallons per day or a peak wet weather flow of 240,000 gallons per day.

5. Final Effluent Quality. Treated wastewater used for irrigation of the pasture shall meet the following quality limits at all times, in any grab sample:

	Measured Parameter	Quality Specifications
a.	pH	6.5 minimum
b.	Biochemical oxygen demand	65 mg/L, maximum
c.	Biochemical oxygen demand	45 mg/L, monthly average
d.	Total coliform	240 MPN*/100 ml, maximum median from last 5 samples (* MPN means most probable number)

6. Discharge Discontinuation. Discharges of effluent to the discharge area are prohibited during any period when the limits specified in B.5 (Final effluent quality) above are not being met. The discharges shall not resume until all conditions which caused the specified limits to be violated have been corrected.

7. Wastewater System Operation and Maintenance

a. The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This discharge specification requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

b. The wastewater system shall be operated and maintained in accordance with the procedures identified in the Operations and Maintenance (O&M) Manual required by this Order (Provision C.11.b).

8. Pump Stations

a. All pump stations shall be designed, constructed, operated, and maintained to prevent the occurrence of a sewage spill or spills resulting from mechanical breakdown or power failure.

b. All pump stations shall be equipped with reserve hydraulic capacity sufficient to provide storage of wastewater during a pump failure condition for at least 24 hours, and water level monitoring and alarm system(s) to provide notification of high water level conditions. The alarm system shall include audible and visual alarms sufficient to notify operating personnel of an alarm condition. If operating personnel are not present at the Facility, the alarm system shall include an automated telephone dialer or other telecommunication system capable of notifying on-call operating personnel of the alarm condition.

c. The power supply for alarm systems shall be sustained in the case of a loss of power, in order to ensure notification to the operators.

9. Pipe Separations

a. There shall be no cross-connection between potable domestic water supply pipes and pipes containing treated wastewater.

b. There shall be at least a 10-foot horizontal and a one-foot vertical separation between all pipes transporting wastewater and pipes transporting potable domestic water, with the potable domestic water pipes above the wastewater pipes.

10. Discharge Area Separation from Wells. The discharge area shall be designed, constructed, and maintained such that a horizontal separation distance of at least 100 feet is maintained between any future domestic water supply wells and the nearest point of the discharge area.

11. Wastewater Solids. All solid materials removed from any stage of the liquid waste stream of the wastewater system shall be disposed of at a legal point of disposal, and in accordance with the provisions of Title 27 of the California Code of Regulations. This includes solids accumulated in septic tanks, grease traps or pump tanks. For the purpose of this requirement, a legal point of disposal is defined as a facility for which WDRs have been prescribed or waived by a Regional Water Board and which facility is in full compliance therewith. This Order does not authorize disposal of wastewater solids anywhere on the Facility.

C. PROVISIONS

1. Order Compliance. The Discharger shall comply immediately with all Prohibitions, Specifications, and Provisions of this Order. In the event that the Discharger is unable to comply immediately, the Discharger has 30 days from the time of the adoption of this Order to submit a required time schedule demonstrating that compliance will be reached within 6 months of the adoption of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these WDRs. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these WDRs by the Water Board (CWC sections 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, and 13350).

2. Self-Monitoring Program. The Discharger shall comply with the Self-Monitoring Program (Attachment E) for this Order as adopted by the Board and as may be amended by the Executive Officer.

3. Order Availability. A copy of these WDRs shall be maintained by the Discharger and shall be made available by the Discharger to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) at the Facility.

4. Vested Rights. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under federal, State, or local laws, nor do they create a vested right for the Discharger to continue the waste discharge.

5. Severability. Provisions of these WDRs are severable. If any provisions of these requirements are found invalid, the remaining requirements shall not be affected.

6. Requirements for Technical Reports. All technical and monitoring reports required by this Order are required pursuant to CWC section 13267. Failure to submit reports in accordance with schedules

established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement actions pursuant to CWC section 13268.

7. **Electronic Reporting Format.** In addition to print submittals, all reports submitted pursuant to this Order shall be submitted as electronic files in PDF format. All electronic files shall be submitted via the Water Board's file transfer protocol (FTP) site or the centralized email address: WDR.monitoring@waterboards.ca.gov. Email notification shall be provided to Water Board staff whenever a file is uploaded to the Water Board's FTP site.

8. **As-Built Plans - Current System**
   a. **As-Built Plans.** The Discharger shall submit to the Board a technical report, acceptable to the Executive Officer, no later than 90 calendar days from the date of adoption of this Order, comprised of as-built plan drawings, and narrative descriptions as appropriate, of the completed- to-date wastewater treatment and discharge system.

   b. **Tank Specifications.** For all tanks, the as-built plans shall include complete tank specifications (e.g., location, material, total and operating capacities, dimensions, date of installation, number of compartments, access openings, risers and riser lids), and results of watertight verification tests. All plan drawings shall be of a scale of at least one inch equals 40 feet, properly labeled, and clearly legible.

9. **Future Changes**
   a. **As-Built Plans.** In the event of any changes to wastewater system components in the future, updated as-built plans of the portion of the system affected by such changes shall be submitted to the Board within 90 days of completion of those changes. Depending upon the types and extent of changes, an amendment to this Order may be necessary.

   b. **Water Balance Documentation**. If there are plans to increase the operations to 80% of the Facility capacity or more, the Discharger shall submit a Water Balance Documentation for the discharge system including the two storage ponds and the discharge area. The water balance documentation shall demonstrate adequate capacity for the wastewater treatment and discharge system to treat and discharge according to seasonal weather patterns in the vicinity of the Facility and the authorized wastewater inflow volume discharge specifications in this Order.

10. **Operation and Maintenance Providers**
   a. The wastewater system shall be operated and maintained by persons that are experienced in and knowledgeable of proper wastewater treatment and discharge practices. Such persons shall be wastewater treatment plant operators possessing a current and valid certification from the State of California.

   b. If the Discharger does not have this expertise within its own staff, the Discharger may fulfill this requirement by contracting with a State Water Board-certified wastewater treatment plant contract operator for operation and maintenance of the wastewater system.

   c. The Discharger shall submit to the Board, within ten days of adoption of this Order, copies of signed service contracts with operators for operation and maintenance of the wastewater system.

   d. In the event of any changes in contracted service providers, the Discharger shall notify the Board in writing of such changes prior to the effective date of such changes, and submit copies of the new or revised contracts within ten working days from the effective date of those changes.

11. Operation and Maintenance Program. The Discharger shall develop and implement an Operations and Maintenance (O&M) Program for the wastewater system, in accordance with the following:

a. **O&M Program.** The O&M Program shall include all procedures necessary to properly operate the wastewater system in accordance with design parameters, to achieve compliance with WDRs, and to maintain the system in good working condition.

b. **O&M Manual**. The O&M Program shall include an O&M Manual documenting all aspects of the program and it shall be readily accessible at all times for the system operators. The O&M Manual shall include, but not be limited to, the following:

1) Description of the overall wastewater system;
2) Scaled plan drawings of the wastewater system, including pipes, valves and control equipment;
3) Description of the wastewater flow through the system, from sources to final discharge;
4) Descriptions and specifications of all system components and equipment;
5) Routine procedures for operation of the wastewater system;
6) Routine procedures for management and disposal of wastewater solids removed from the wastewater streams;
7) Procedures for maintenance of all system components;
8) Procedures for operation of the wastewater system during emergency conditions such as power outage, major equipment failure, extreme wet weather conditions, or other emergencies; and
9) Copies of all applicable regulatory permits for the wastewater system, or specific references of those permits and identification of a location at the Facility where those permits are available for review and reference by operating personnel, other service providers, or regulatory agency staff.

c. **O&M Manual Submittal.** The Discharger shall submit to the Board a technical report, acceptable to the Executive Officer, no later than 90 calendar days from the date of adoption of this Order, comprised of a complete copy of the O&M Manual, identification of person(s) responsible for implementation of the O&M Program, and contact information for those persons.

d. **O&M Manual Review and Updates.** The Discharger shall periodically review and update, as necessary, the O&M Manual in order to ensure that the manual remains current and applicable to the wastewater system and its proper operation.

e. **O&M Manual Annual Reports.** Annually, the Discharger shall submit a report to the Board containing any revisions or updates of the O&M Manual that have been made, or a letter stating that the O&M Manual remains adequate and no revisions are necessary. This report shall be submitted as part of the Annual Monitoring Report.

12. Non-Compliance Reporting. In the event the Discharger is unable to comply with any of the conditions of this Order, the Discharger shall notify the Board by telephone as soon as the Discharger or the Discharger's agents have knowledge of the incident. Written confirmation of this notification shall be submitted within five working days of the telephone notification. The written notification shall include the following information:

a. A description of the noncompliance and its cause;
b. The period of noncompliance;
c. Actions that were taken in response to the incident; and
d. The steps taken or planned to prevent recurrence of the noncompliance.

13. Endangerment of Human Health or the Environment. The Discharger shall report any noncompliance that may endanger human health or the environment. Any such information shall be provided orally to the

Executive Officer, or an authorized representative, and the California Department of Public Health (CDPH), Environmental Management Branch, Preharvest Shellfish Unit, within 24 hours from the time the Discharger becomes aware of the circumstances. In addition, the Discharger shall notify the property owners of the adjacent residential properties and commercial facilities by telephone as soon as the Discharger or Discharger's agents have knowledge of the incident. A written submission to the Water Board and CDPH shall be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain the following:

a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected;
c. Actions that were taken in response to the incident;
d. The anticipated time it is expected to continue; and
e. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

14. Entry, Access, and Inspection. The Discharger shall permit the Board or its authorized representatives, in accordance with CWC section 13267(c):

a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
b. Access to and copy of, at reasonable times, any records required by conditions of this Order;
c. Inspection, at reasonable times, of any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; or
d. Photography, sampling, or monitoring, at reasonable times, for the purpose of assuring compliance with this Order.

15. Warning Signs. The Discharger shall clearly identify the wastewater discharge area, and other wastewater system components as necessary, with warning signs to inform the public that wastewater is present, and that this water is unfit for human consumption.

Notification for Modifications to the Order

16. Change in Control or Ownership. In the event of any change in control or ownership of land or wastewater systems presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Board. The succeeding owner or operator, in order to obtain authorization for discharges regulated by this Order, must apply in writing to the Water Board, requesting transfer of the Order. This request shall include complete identification of the new owner or operator, the reasons for the change, and the effective date of the change. Discharges conducted without submittal of this request will be considered discharges without WDRs and thus violations of the CWC.

17. Report of Waste Discharge for Change in Discharge Characteristics, Facility. The Discharger shall file with the Board a ROWD at least 180 days before making any material change in the character, location, or volume of the discharges or discharge facilities, or any changes to the wastewater system equipment as described in this Order, except for emergency conditions. In the event of implementing changes in response to emergency conditions, the Board shall be notified immediately by telephone, and in writing within five calendar days of such changes.

18. Order Review and Update. The Board will review this Order periodically and may revise the requirements as necessary to comply with changing State and federal laws, regulations, policies, or guidelines; changes in this Board's Basin Plan; or changes in the discharge characteristics.

19. Order Termination. After notice and public meeting, this Order may be terminated or modified by the Board for any reason.

20. Rescission of Previous Order. The WDRs prescribed by this Order supersede those prescribed by Order No. 86-086 for North Marin County Water District. Order No. 86-086 is hereby rescinded, except for enforcement purposes.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on May 13, 2015.

_____

BRUCE H. WOLFE
Executive Officer

Attachments:

A. Facility Plan
B. Wastewater Treatment and Discharge System Flow Schematic
C. Collection System Map
D. Three-stage Treatment Pond System Configuration and Specifications Schematic
E. Self-Monitoring Program

CIWQS Place Number: 264662

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

ORDER No. R2-2016-0045
NPDES No. CA0030228

The following discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger	Schnitzer Steel Industries, Inc.
Facility Name	Schnitzer Steel Products Company
Facility Address	1101 Embarcadero West Oakland, CA, 94607 Alameda County
CIWQS Place Number	255924

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated process water, cooling water, dust suppression water, wash water, and stormwater	37.7962°	-122.2887°	Oakland Inner Harbor

Table 3. Administrative Information

This Order was adopted on:	November 9, 2016
This Order shall become effective on:	January 1, 2017
This Order shall expire on:	December 31, 2021
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with California Code of Regulations, title 23, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	April 5, 2021
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region, have classified this discharge as follows:	Minor

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above.

_____

Bruce H. Wolfe**,** Executive Officer

Contents

Tables

Attachments

I. FACILITY INFORMATION

Information describing the Schnitzer Steel Industries, Inc.'s (Discharger's) Schnitzer Steel Products Company (Facility) is summarized in Table 1 and Fact Sheet (Attachment F) sections I and II.

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), finds the following:

A. Legal Authorities. This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from the Facility to surface waters.

B. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information the Discharger submitted as part of its application and other available information. The Fact Sheet contains background information and rationale for the requirements in this Order and is hereby incorporated into and constitutes findings for this Order. Attachments A through E and G are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. No provisions and requirements in this Order are included to implement State law only.

D. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe these WDRs and provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

E. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing.

THEREFORE, IT IS HEREBY ORDERED that in order to meet the provisions of California Water Code division 7 (commencing with § 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. As of the effective date of this Order, this Order rescinds the Discharger's coverage under State Water Resources Control Board (State Water Board) Order No. 2014-0057-DWQ (*Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, NPDES Permit No. CAS000001), except for enforcement purposes. The requirements of this Order shall supersede the requirements prescribed in that general permit as it applies to this Discharger as of the effective date of this Order. This Order does not affect any other order applicable to the Discharger or Facility, including but not limited to Cleanup and Abatement Order No. R2-2013-1001.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater at a location or in a manner different from that described in Fact Sheet sections I, II.A, and II.B, Attachments B and C, and elsewhere in this Order is prohibited.

B. Discharge at Discharge Point No. 001 is prohibited whenever the Discharger is allowed to discharge wastewater to the East Bay Municipal Utility District (EBMUD) wastewater treatment plant via the sanitary sewer.

C. Discharge greater than 600 gallons per minute (gpm) is prohibited at Discharge Point No. 001.

D. Bypass of untreated or partially-treated effluent to waters of the United States is prohibited, except as provided for in Attachment D section I.G of this Order.

E. Discharge of untreated stormwater, process wastewater, or waste materials (e.g., dust suppression water, wash water, spilled product, fugitive dust, dirt, rubbish, refuse, or debris), except as authorized by this Order, directly or indirectly to waters of the United States is prohibited. Incidental dust suppression water droplets, incidental spilled product from ship loading activity, fugitive dust or dirt, or wind-blown debris may be discharged provided that the Discharger fully complies with Provisions VI.C.6.d and VI.C.8 of the Order.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. The Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly [2]	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids (TSS)	mg/L	30	45	---	---
pH	standard units	---	---	6.5	8.5
Oil and Grease	mg/L	10	20	---	---
Copper	µg/L	6.2	12	---	---
Acute Toxicity [1]	percent survival	---	---	70	---

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter

Footnotes:

[1] Acute toxicity tests shall measure the survival of test organisms in 96-hour bioassays of undiluted effluent. Bioassay shall be performed using the most up-to-date U.S. EPA protocols and species as specified in the MRP. A bioassay test showing survival of less than 70% shall represent a violation of this effluent limit.

[2] Compliance with average monthly effluent limitations shall be based on at least two monitoring results collected within the same calendar month. If a second sample cannot be collected within a calendar month because no additional discharge event occurs within the month, then the single sample shall only be used to evaluate compliance with the maximum daily effluent limit.

B. In accordance with Provision VI.C.6, the Discharger shall implement Best Management Practices (BMPs) to the extent practicable as part of a Water Pollution Prevention Plan (WPPP) to control its discharges as necessary to meet applicable water quality standards. BMPs shall

reflect best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce or prevent discharges of pollutants in a manner that reflects best industry practice considering technological availability and economic practicability and achievability. Likewise, Provision VI.C.4 sets forth additional controls necessary to implement BAT and BCT.

V. RECEIVING WATER LIMITATIONS

A. The discharge shall not cause the following conditions to exist in receiving waters at any place:

1. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses;

2. Alteration of suspended sediment in such a manner as to cause nuisance or adversely affect beneficial uses, or detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life;

3. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses;

4. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

5. Alteration of temperature beyond present natural background levels;

6. Changes in turbidity that cause nuisance or adversely affect beneficial uses, or increases from normal background light penetration or turbidity greater than 10 percent in areas where natural turbidity is greater than 50 nephelometric turbidity units;

7. Coloration that causes nuisance or adversely affects beneficial uses;

8. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or

9. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

B. The discharge shall not cause the following limits to be exceeded in receiving waters at any place within one foot of the water surface:

1. Dissolved Oxygen — 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

2. Dissolved Sulfide — Natural background levels

3.	pH	The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.
4.	Nutrients	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

C. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder. If more stringent water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board may revise or modify this Order in accordance with the more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all "Standard Provisions" in Attachment D.

2. The Discharger shall comply with all applicable provisions of the "Regional Standard Provisions, and Monitoring and Reporting Requirements for NPDES Wastewater Discharge Permits" in Attachment G.

B. Monitoring and Reporting

The Discharger shall comply with the MRP (Attachment E), and future revisions thereto, and applicable sampling and reporting requirements in Attachments D and G.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

b. If new or revised water quality objectives or total maximum daily loads (TMDLs) come into effect for San Francisco Bay and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of the effluent limitations in this Order is not intended to restrict in any way future modifications based on legally adopted water quality objectives or TMDLs or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If State Water Board adopts precedential decisions, new policies, new laws, or new regulations are adopted.

e. If an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to this discharge.

f. Or as otherwise authorized by law.

The Discharger may request a permit modification based on any of the circumstances above. With any such request, the Discharger shall include antidegradation and anti-backsliding analyses.

2. Effluent Characterization Study and Report

a. Study Elements. The Discharger shall characterize and evaluate the discharge from the following discharge point to verify that the "no" or "unknown" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples at the monitoring location set forth below, as defined in the MRP, at no less than the frequency specified below:

Discharge Point	Monitoring Location	Minimum Frequency
001	EFF-001	Once

The samples shall be analyzed for the priority pollutants listed in Attachment G, Table C, except for those priority pollutants with effluent limitations where the MRP already requires monitoring. Compliance with this requirement shall be achieved in accordance with the specifications of Attachment G sections III.A.1 and III.A.2.

b. Reporting Requirements

i. The Discharger shall, within 45 days of receipt of analytical results, report the following in the transmittal letter for the appropriate self-monitoring report:

(a) Indication that a sample for this characterization study was collected; and

(b) Identity of priority pollutants detected at or above applicable water quality criteria (see Fact Sheet Table F-5 for the criteria) and the detected concentrations of those pollutants.

ii. The Discharger shall summarize the data evaluation and submit a final report that presents all these data with its application for permit reissuance.

3. Pollutant Minimization Program

a. The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as detected but not quantified [DNQ] when the effluent limitation is less than the method detection limit [MDL], sample results from analytical methods more sensitive than those methods required by this Order in accordance with State Implementation Policy (SIP) sections 2.4.2 or 2.4.3,

presence of whole effluent toxicity, health advisories for fish consumption, or results of benthic or aquatic organism tissue sampling) and either:

i. A sample result is reported as DNQ and the effluent limitation is less than the Reporting Level (RL); or

ii. A sample result is reported as not detected (ND) and the effluent limitation is less than the MDL, using definitions in Attachment A and reporting protocols described in the MRP.

b. If triggered by the reasons set forth in Provision VI.C.3.a, above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals:

i. Annual review and semi-annual monitoring of potential sources of the reportable priority pollutants, which may include fish tissue monitoring and other bio-uptake sampling or alternative measures when source monitoring is unlikely to produce useful analytical data;

ii. Quarterly monitoring for the reportable priority pollutants in the influent to the wastewater treatment system. The Executive Officer may approve commensurate alternative measures when influent monitoring is unlikely to produce useful analytical data;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutants in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and

v. Inclusion of the following specific items in the annual report:

(a) All Pollutant Minimization Program monitoring results for the previous year;
(b) List of potential sources of the reportable priority pollutants;
(c) Summary of all actions undertaken pursuant to the control strategy; and
(d) Description of actions to be taken in the following year.

4. Treatment System Optimization

a. The Discharger shall optimize its treatment system to maximize pollutant removal using inventoried stormwater, inventoried process wastewater, or simulated stormwater consisting of existing process wastewater diluted with potable water, as appropriate. Treated effluent generated from the study shall be discharged to the EBMUD wastewater treatment plant via the sanitary sewer.

By July 1, 2017, the Discharger shall submit a report documenting the steps taken to optimize its system. The report shall, at a minimum, contain the following elements:

i. Process Control Parameters. The report shall identify process control parameters (e.g., detention time or pH) critical to pollutant removal during each treatment phase

(i.e., preliminary clarification, electrocoagulation, clarification and filtration, and carbon polishing).

ii. Optimal Operating Conditions. The report shall identify optimal operating conditions and process monitoring parameters that allow for adjustments to optimize pollutant removal for each treatment phase. The Discharger may conduct treatability studies that vary control parameters to identify conditions that best remove pollutants during each treatment phase. The Discharger shall also optimize the entire treatment system considering all treatment phases, including carbon polishing, to optimize pollutant removal (i.e., the optimal conditions for individual treatment phases may not optimize conditions for the entire treatment system).

b. After July 1, 2017, when discharging at Discharge Point No. 001, the Discharger shall at all times operate the treatment system in the manner that optimizes pollutant removal.

5. Storage and Treatment Standard Operation and Maintenance Procedures

By September 1, 2017, the Discharger shall develop and commence implementation of standard operation and maintenance procedures for the wastewater storage and treatment system as described below (in addition to complying with the operations and maintenance requirements of Attachments D and G, sections I.D). The procedures shall be consistent with the results of treatment optimization required by Provision VI.C.4. The Discharger shall maintain a copy of the standard operation and maintenance procedures at the Facility, update it as necessary, and notify the Regional Water Board of significant revisions.

The standard operation and maintenance procedures shall, at a minimum, contain the following elements:

a. Scrap acceptance criteria to ensure that Discharger operators screen all incoming scrap metal to minimize to the extent reasonably practicable hazardous or radioactive material and other pollutants that can adversely affect treatment system effluent quality;

b. Procedures to ensure that onsite wastewater storage (i.e., storage within the 1.2-million-gallon storage tank and any additional onsite storage structures that may be built in the future) and reuse are optimized so as to minimize discharges to Discharge Point No. 001 and to minimize onsite ponding to the extent practicable (e.g., by preemptively discharging excess wastewater to the sanitary sewer when significant rain is anticipated and by efficiently transferring ponded water to the 1.2-million-gallon storage tank);

c. Operational parameters and settings to ensure that the system is operating optimally when discharge to Discharge Point No. 001 is necessary (e.g., control parameters to maintain when discharging to Discharge Point No. 001 versus the sanitary sewer);

d. Monitoring protocols to ensure compliance with the MRP;

e. Maintenance requirements (e.g., criteria that trigger removal of sludge, backwash of filters, and regeneration of activated carbon; and inspection and replacement frequency of critical equipment); and

f. Operator training (e.g., refresher training before the wet season begins each year).

6. Water Pollution Prevention Plan

This provision supersedes the requirements of Attachment G sections I.C.2 and I.J.

By April 1, 2017, the Discharger shall develop, submit, and commence implementation of a facility-wide Water Pollution Prevention Plan (WPPP) that contains the following elements as described further below: (a) site map, (b) list of industrial materials, (c) potential pollutant sources, (d) best management practices (BMPs), (e) monitoring plan, (f) annual evaluation, and (g) annual report. The WPPP shall set forth BMPs for stormwater, process wastewater, and process-related materials to comply with discharge limitations, including Discharge Prohibition III.E of this Order, and to achieve the following objectives:

- Collect, convey, and retain stormwater and process wastewater onsite for reuse to the extent practicable;

- Reduce or prevent pollutants in stormwater and process wastewater delivered to the onsite wastewater treatment system; and

- To the extent practicable, prevent offsite discharges that could directly or indirectly affect waters of the United States.

The Discharger shall maintain a copy of the WPPP at the Facility, update it as necessary, and notify the Regional Water Board of significant revisions within 30 days of making such revisions.

Prior to submitting the WPPP, the Discharger shall comply with provisions X and XI.A of NPDES Permit No. CAS000001 (State Water Board Order No. 2014-0057-DWQ). After the Discharger submits the WPPP, compliance with provisions X and XI.A of NPDES Permit No. CAS000001 shall no longer be required.

a. Site Map. The WPPP shall contain one or more site maps that illustrate the following:

i. Facility boundary and stormwater and process wastewater drainage areas, including the flow direction of each drainage area, areas of soil erosion (i.e., unpaved soil or soil with compromised pavement), and nearby surface water bodies and municipal storm drain inlets;

ii. Locations of stormwater and process wastewater collection and conveyance systems, associated treatment systems, discharge locations, and direction of flow;

iii. Locations of structural control measures (e.g., storage tanks, catch basins, berms, detention ponds, secondary containment, oil/water separators, and diversion barriers) that affect stormwater and process wastewater flows;

iv. Impervious areas, including paved areas, buildings, covered storage areas, and other roofed structures;

v. Locations where materials are directly exposed to precipitation or wind, and locations where significant spills or leaks have occurred;

vi. Industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage and maintenance areas, material handling, conveyance, and processing areas, waste treatment and storage areas, dust or particulate generating areas, cleaning and materials reuse areas, and other areas of industrial activity that may have potential pollutant sources.

b. List of Industrial Materials. The WPPP shall include a list of industrial materials or wastes handled at the Facility and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequencies.

c. Potential Pollutant Sources. The WPPP shall contain the following elements:

i. Description of Potential Pollutant Sources

(a) Industrial Processes. The WPPP shall describe each industrial process, including shredding, dust suppression, ship loading, equipment washdown, and any other activities that generate water that drains to stormwater or process wastewater conveyance systems. The WPPP shall describe the type, characteristics, and approximate quantity of industrial materials used in or resulting from each process. The WPPP shall identify and describe areas protected by containment structures and the corresponding containment capacity.

(b) Material Handling and Storage Areas. The WPPP shall describe each material handling and storage area, including the type, characteristics, and quantity of industrial materials or wastes handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and corresponding containment capacity.

(c) Dust, Particulate, Debris, and Refuse Generating Activities. The WPPP shall identify all industrial activities that generate dust, particulate, debris, or refuse that may be deposited within the Facility boundaries or at offsite locations that could directly or indirectly affect waters of the United States. These activities shall include, but not be limited to, onsite material transfer, ship loading and unloading, shredding, and Joint Products Plant operations. The WPPP shall describe such activities, locations where these materials may accumulate, source types, and characteristics.

(d) Significant Spills and Leaks. The WPPP shall identify Facility areas where spills or leaks can likely occur. The WPPP shall list the following for the previous five years:

(1) any industrial materials that have spilled or leaked in significant quantities and have been discharged to (or had the potential to discharge to) waters of the United States; and

(2) any toxic chemicals identified in 40 C.F.R. section 302 that have been reported on U.S. EPA Form R, as well as any oil or hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) discharged to waters of the United States.

In each case, the WPPP shall include the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged; the cleanup or remedial actions that occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure that spills or leaks do not recur.

(e) Erodible Surfaces. The WPPP shall describe Facility locations where soil or other particulate erosion may be caused by industrial activity (e.g., truck traffic) or contact with water or wind. These locations shall, at a minimum, include areas of unpaved soil or soil with compromised pavement.

ii. Assessment of Potential Pollutant Sources

(a) The WPPP shall include a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include the following:

(1) Facility areas with likely pollutant sources, including but not limited to areas where wastewater or waste materials (e.g., dust suppression water, wash water, spilled product, fugitive dust, dirt, rubbish, refuse, or debris) could directly or indirectly affect waters of the United States;

(2) Pollutants likely to be present;

(3) Approximate quantity, physical characteristics, and location of each industrial material handled, produced, processed, stored, recycled, or disposed;

(4) Degree to which the pollutants associated with those materials may be discharged directly or indirectly (e.g., through contact with water or wind) to waters of the United States;

(5) Direct and indirect pathways (e.g., through contact with water or wind) by which pollutants may be discharged to waters of the United States;

(6) Sampling, visual observation, and inspection records; and

(7) Effectiveness of existing BMPs in meeting the WPPP objectives.

(b) Based on the assessment above, the WPPP shall identify any Facility areas where the minimum BMPs described in Provision VI.C.6.d.i below will not adequately meet the WPPP objectives. The Discharger shall identify and implement, to the extent feasible, advanced BMPs as described in Provision VI.C.6.d.ii below for such areas.

(c) Based on the assessment above, the WPPP shall identify any drainage areas with no exposure to industrial activities and materials.

d. Best Management Practices. The WPPP shall describe BMPs as required below:

i. Minimum BMPs. The Discharger shall implement and maintain each of the following minimum BMPs to the extent practicable. The Discharger shall select, design, install, and implement BMPs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability to meet the WPPP objectives and applicable effluent limits.

(a) Good Housekeeping. The Discharger shall undertake the following:

(1) Observe outdoor areas to determine housekeeping needs. These areas shall include stormwater and process wastewater drainage areas, conveyance systems, areas around ship loading operations, and materials handling and storage areas. They shall also include offsite areas in the vicinity of the Facility, including Embarcadero West and adjacent neighboring properties. If access to neighboring properties cannot be arranged, observations shall be made to the extent possible from reasonably accessible areas. Any dust, debris, waste, spills, leaks, or tracked materials associated with the Discharger's operations shall be cleaned up and disposed of properly;

(2) Minimize or prevent material tracking (e.g., by trucks);

(3) Minimize or control dust, particulate, debris, and refuse generated from industrial materials or activities; and

(4) Sweep paved surfaces to minimize the potential for pollutants to be tracked offsite.

(b) Preventive Maintenance. The Discharger shall undertake the following:

(1) Identify all equipment and systems used outdoors that may spill or leak pollutants;

(2) Observe the identified equipment and systems to detect leaks and identify conditions that may result in the development of leaks;

(3) Establish an appropriate schedule for maintenance of identified equipment and systems; and

(4) Establish procedures for prompt maintenance and repair of equipment and maintenance of systems when conditions exist that may result in the development of spills or leaks.

(c) Spill and Leak Prevention and Response. The Discharger shall undertake the following:

(1) Establish procedures and controls to minimize spills and leaks;

(2) Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the water conveyance systems (spilled or leaked industrial materials shall be cleaned promptly and disposed of properly);

(3) Identify and describe all necessary and appropriate spill and leak response equipment, locations of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and

(4) Identify and train appropriate spill and leak response personnel.

(d) Material Handling and Waste Management. The Discharger shall undertake the following:

(1) Screen all incoming scrap to minimize the chance of accepting materials that could be significant sources of pollutants (see Provision VI.C.5.a);

(2) Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with water or wind;

(3) Cover, contain, or otherwise manage all stored industrial materials (including but not limited to non-solid industrial materials or wastes, such as particulates, powders, shredded material, etc.) that can be readily mobilized, transported, or dispersed by contact with water or wind;

(4) Cover or close industrial waste disposal containers and industrial material storage containers when not in use;

(5) Divert stormwater and process wastewater away from stockpiled materials;

(6) Employ measures to reduce ponding of stormwater and process wastewater in the vicinity of stockpiled materials;

(7) Clean up all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures in Provision VI.C.6.d.i(c) above; and

(8) Observe and clean, as appropriate, any outdoor material or waste handling equipment or containers (e.g., conveyor system, skiff pan) that can be contaminated by contact with industrial materials or wastes.

(e) Erosion and Sediment Controls. For each erodible surface location identified in Provision VI.C.6.c.i(e) above, the Discharger shall undertake the following:

(1) Implement effective wind erosion controls;

(2) Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to forecasted storms;

(3) Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control erodible materials that could be discharged or tracked offsite (e.g., by using paving, wheel washes, and sweeping); and

(4) Divert stormwater and process wastewater generated from within the Facility away from all erodible materials.

(f) Employee Training Program. The Discharger shall undertake the following:

(1) Ensure that all personnel implementing the various WPPP compliance activities are properly trained to implement WPPP requirements, including but not limited to BMP implementation, BMP effectiveness evaluations, visual observations, and monitoring activities. Appropriate staff shall be trained by a Qualified Industrial Stormwater Practitioner who has completed State Water Board-sponsored or approved training and has registered in the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS);

(2) Prepare or acquire appropriate training manuals or training materials;

(3) Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;

(4) Provide a training schedule; and

(5) Maintain documentation of all completed training classes and the personnel that received training.

(g) Quality Assurance and Record Keeping. The Discharger shall undertake the following:

(1) Develop and implement management procedures to ensure that appropriate staff implements all WPPP elements;

(2) Develop a method of tracking and recording the implementation of the BMPs identified in the WPPP; and

(3) Maintain the BMP implementation records, training records, and records related to any spills and cleanup-related response activities for a minimum of five years.

ii. Advanced BMPs. In addition to implementing the minimum BMPs described above, the Discharger shall, to the extent practicable, implement and maintain additional advanced BMPs necessary to achieve WPPP objectives and to comply with discharge limitations, including Discharge Prohibition III.E of this Order. The Discharger shall do so in a manner that reflects BAT and BCT (i.e., best industry practice considering technological availability and economic practicability and achievability). One example of a possible advanced BMP would be to pressure wash Embarcadero West from the Facility main gate to the non-ferrous customer gate to minimize offsite tracking of pollutants and capture rinse water for return to the Facility.

iii. BMP Descriptions

(a) The WPPP shall describe BMPs being implemented at the Facility, including the following:

(1) The pollutants or waste material that the BMP is designed to reduce or prevent;

(2) The frequency, times of day, or conditions when the BMP is scheduled for implementation;

(3) The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;

(4) The individual or position responsible for implementing the BMP;

(5) The procedures, including maintenance procedures, and instructions to implement the BMP effectively;

(6) The equipment and tools necessary to implement the BMP effectively; and

(7) BMPs that may require more frequent visual observations beyond those described in Provision VI.C.6.e.ii below.

(b) The WPPP shall identify and justify each minimum BMP or applicable advanced BMP not being implemented at the Facility (i.e., because the BMP does not reflect best industry practice considering technological availability and economic practicability and achievability).

(c) The WPPP shall identify any BMPs implemented in lieu of any of the minimum or applicable advanced BMPs.

iv. BMP Summary Table. The WPPP shall include a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

e. Monitoring Plan. The WPPP shall contain a Monitoring Plan describing how the Discharger will evaluate the effectiveness of WPPP implementation and determine what changes to the WPPP may be needed, if any. The Monitoring Plan shall contain the following elements: (i) areas to be monitored, (ii) visual observations, (iii) monitoring team, (iv) records and reporting, and (v) WPPP revisions. Provision VI.C.6.e.vi, below, provides a mechanism for reducing these monitoring requirements if appropriate.

i. Areas to Be Monitored. The Monitoring Plan shall include a list of areas to be monitored considering the potential pollutant sources identified in accordance with Provision VI.C.6.c, above. The list shall include the following:

(a) Onsite drainage areas, including outdoor industrial equipment and storage areas, outdoor industrial activity areas, and other potential industrial pollutant sources;

(b) Areas associated with ship loading operations;

(c) Areas where industrial wheel washes are operating; and

(d) Offsite areas adjacent to the Facility, including Embarcadero West and adjacent neighboring properties. If access to neighboring properties cannot be arranged,

monitoring shall be conducted to the extent possible from reasonably accessible areas.

ii. Visual Observations

(a) At least once each calendar month, the Discharger shall visually observe each area listed pursuant to section VI.C.6.e.i, above, for the presence or indication of prior, current, or potential unauthorized discharges to waters of the United States.

(b) The Discharger shall assess the potential source of any observed prior, current, or potential unauthorized discharge and the effectiveness of related BMPs.

(c) The Discharger shall record visual observations, potential sources of unauthorized discharges, and comments regarding BMP effectiveness on a standard form that the Discharger shall develop for this purpose and include within the Monitoring Plan.

(d) Visual observations shall be conducted during daylight and during Facility operations.

iii. Monitoring Team. The Monitoring Plan shall identify team members assigned to conduct the monitoring, describe their roles, and establish training protocols.

iv. Records and Reporting

(a) The Discharger shall summarize visual observations in quarterly SMRs and the WPPP Annual Report (see Provision VI.C.6.g below).

(b) The Discharger shall maintain all records throughout the life of this Order and for a minimum of five years. Records shall include the date, approximate time, locations observed or recorded, presence and probable source of any observed pollutants, and any response action or additional WPPP revisions necessary in response to the visual observations and enhanced monitoring.

v. Corrective Actions and WPPP Revisions. The Discharger shall take corrective actions, and review and revise the WPPP as necessary, when visual observations indicate that pollutant sources have not been adequately controlled to prevent unauthorized discharges.

vi. Reduced Monitoring. With the written concurrence of the Executive Officer, the Discharger may reduce the frequency of visual observations commensurate with reductions in the potential for pollutants to be directly or indirectly discharged to waters of the United States. For example, monitoring may be reduced if there is documented evidence that BMPs are effective and reliably implemented. Likewise, monitoring may be eliminated to the extent that any site improvements eliminate the potential for discharges to waters of the United States.

f. Annual Evaluation. The WPPP shall commit the Discharger to conduct at least one Annual Evaluation for each reporting year (July 1 through June 30). If the Discharger conducts an Annual Evaluation fewer than 8 months or more than 16 months after it

conducts the previous Annual Evaluation, it shall document its justification for doing so. Based on each Annual Evaluation, the Discharger shall revise the WPPP as appropriate and implement the revisions within 90 days of completing the Annual Evaluation. At a minimum, each Annual Evaluation shall consist of the following:

i. Review of all visual observation, sampling results, and inspection records for the previous reporting year;

ii. Inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants or waste materials travelling offsite;

iii. Inspection of all drainage areas previously identified as having no exposure to industrial activities and materials;

iv. Inspection of equipment needed to implement BMPs;

v. Inspection of any BMPs; and

vi. Review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if BMPs are properly designed, implemented, and effective.

g. Annual Report. The WPPP shall commit the Discharger to certify and submit an Annual Report no later than July 30 following each reporting year (July 1 through June 30). The Discharger shall include the following in each Annual Report:

i. Compliance Checklist that indicates whether the Discharger complies with, and has addressed all applicable requirements of, this Order;

ii. Explanation for any non-compliance, as indicated in the Compliance Checklist;

iii. Identification, including page numbers or sections, of all revisions made to the WPPP within the reporting year;

iv. Date of the Annual Evaluation; and

v. Summary of visual observations.

7. Onsite Storage Capacity

a. Onsite Storage Capacity Requirements. The Discharger shall maintain the capacity to store stormwater and wastewater within the 1.2-million-gallon storage tank, and any additional onsite storage structures that may be built in the future, as necessary to achieve WPPP objectives (see Provision VI.C.6) in a manner that reflects BAT and BCT (i.e., best industry practice considering technological availability and economic practicability and achievability).

b. Draft Work Plan. By July 1, 2017, the Discharger shall submit a draft work plan to the Regional Water Board for a study to determine the volume of onsite storage required to meet the onsite storage capacity requirement above. The study shall evaluate a range of storms of varying frequency and duration as determined from local, historical rainfall

records. At a minimum, the study shall consider 25-year, 50-year, and 100-year return frequency storms. The work plan shall describe the analytical approach to be used, including how onsite water movement, tides, sea level rise, and flooding will be assessed. The study shall not include infiltration as available onsite storage. Likewise, the study shall not include onsite ponding (other than within storage structures specifically constructed to store stormwater and wastewater) as available onsite storage. Calculations shall include safety factors. All hydrologic calculations shall be certified by a California-licensed professional engineer.

The study shall identify technologically available implementation alternatives capable of meeting the onsite storage needs for the storms considered and estimate the cost for each alternative. The study shall recommend an alternative that maximizes onsite storage based on best industry practice considering economic practicability and achievability.

c. Final Work Plan. By August 1, 2017, the Discharger shall incorporate Regional Water Board comments, if any; submit a final work plan; and commence work plan implementation.

d. Interim Report. By January 1, 2018, the Discharger shall submit an interim report with its findings, including the recommendation for the volume of onsite storage required to meet the onsite storage capacity requirement above and the costs associated with the various alternatives considered. The report shall identify improvements necessary to implement the recommended alternative (e.g., improved stormwater conveyance), if any. If improvements are necessary, it shall also set forth a schedule for implementation to be completed no later than October 1, 2018. The Executive Officer may extend this deadline up to two years if the Discharger demonstrates that necessary improvements cannot feasibly be completed sooner (e.g., to accommodate any uncertainties associated with remaining Cleanup and Abatement Order No. R2-2013-1001 requirements or with other improvements required by this Order). The Discharger shall implement the recommended alternative in accordance with the schedule.

e. Final Report. By April 1, 2019, the Discharger shall submit a Final Report documenting all work completed to comply with the onsite storage requirements above. The Executive Officer may extend this deadline up to two years if the Discharger demonstrates that necessary improvements cannot feasibly be completed sooner (e.g., to accommodate any remaining Cleanup and Abatement Order No. R2-2013-1001 requirements or other improvements required by this Order). The Final Report may be the same as the Interim Report if no improvements are necessary.

8. Wooden Pier Conveyor System Containment

The Discharger shall fully contain the wooden pier conveyor system such that all industrial stormwater and process wastewater are collected and transferred upland via the stormwater conveyance system, and all spilled product, dust, dirt, rubbish, refuse, and debris are captured for recycling or offsite disposal.

a. Work Plan. By September 1, 2017, the Discharger shall submit a work plan to the Regional Water Board that identifies tasks required to fully contain the wooden pier conveyor system, as described above, and sets forth a schedule for implementation that

achieves full containment no later than October 1, 2019. At a minimum, tasks shall include completion of (1) interim improvements to the conveyor system, wooden pier, and surrounding area; (2) design and engineering studies required to identify all work necessary to implement long-term improvements (e.g., wooden pier bearing capacity study); and (3) long-term improvements.

b. Final Report. By January 1, 2020, the Discharger shall submit a Final Report documenting all work completed to fully contain the wooden pier conveyor system. The Executive Officer may extend this deadline by one-year increments if the Discharger demonstrates that necessary improvements cannot feasibly be completed by October 1, 2019, due to constraints related to project phasing or the structural integrity of the wooden pier, unavoidable delays in obtaining permits or other authorizations, or other circumstances beyond the Discharger's control.

9. Structural Improvements

a. Work Plan. By September 1, 2017, the Discharger shall submit a work plan to the Regional Water Board that identifies tasks required to implement the upgrades described below and sets forth a schedule for complete implementation no later than October 1, 2019. The Executive Officer may extend the deadline for complete implementation by one-year increments if the Discharger demonstrates that necessary improvements cannot feasibly be completed by October 1, 2019, due to constraints related to project phasing, unavoidable delays in obtaining permits or other authorizations, or other circumstances beyond the Discharger's control.

i. Stockpile Management. To the extent practicable, the Discharger shall implement measures (e.g., berms) to divert stormwater and process wastewater away from stockpiled industrial materials to minimize offsite tracking of pollutants and pollutant loads at the treatment system.

ii. Paving. The Discharger shall install paving (or repair, restore, or otherwise maintain existing paving) at the Facility to minimize offsite tracking of pollutants and pollutant loads at the treatment system. At a minimum, the work plan shall: (1) identify areas where degraded pavement will be repaired and restored; (2) identify areas where additional surfaces will paved; (3) document the rationale for each unpaved area not to be paved; (4) include grading and drainage plans with typical cross-sections; (5) include figures showing flow directions and stormwater conveyance system inlets; and (6) describe how the work will be coordinated with any remaining soil and groundwater monitoring activities required by Cleanup and Abatement Order No. R2-2013-1001 and subsequent Regional Water Board orders, if any.

iii. Drainage Upgrades. The Discharger shall install drainage improvements to Embarcadero West immediately adjacent to the Facility (i.e., between the Facility main gate and the non-ferrous "peddler" entrance) to collect and convey stormwater and wash water to the onsite stormwater management system for recycling or treatment.

b. Final Report. By January 1, 2020, the Discharger shall submit a Final Report documenting all work completed to implement the proposed paving and drainage

improvements. The Executive Officer may extend this deadline by one-year increments if the Discharger demonstrates that necessary improvements cannot feasibly be completed by January 1, 2020.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Known to cause cancer in living organisms.

Coefficient of Variation
Measure of data variability calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge
Either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit) for a constituent with limitations expressed in units of mass; or (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period is considered the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
Sample result less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined by conducting a mixing zone study or modeling the discharge and receiving water.

Effluent Concentration Allowance (ECA)
Value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the CV for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (*Technical Support Document For Water Quality-based Toxics Control*, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bay
Indentation along the coast that encloses an area of oceanic water within a distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
Concentration that results from the confirmed detection of the substance below the ML value by the analytical method.

Estuaries
Waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars are considered estuaries. Estuarine waters are considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
Highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
Lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
Highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
Middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between n/2 and n/2+1).

Method Detection Limit (MDL)
Minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Limited volume of receiving water allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results less than the laboratory's MDL.

Persistent Pollutants
Substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program
Program of waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the Pollutant Minimization Program is to reduce all potential sources of a priority pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. Cost effectiveness may be considered when establishing the requirements of a Pollutant Minimization Program. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), is considered to fulfill Pollutant Minimization Program requirements.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board or Regional Water Board.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based

on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water
Any water designated as having a municipal or domestic supply (MUN) beneficial use.

Standard Deviation (σ)
Measure of variability calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

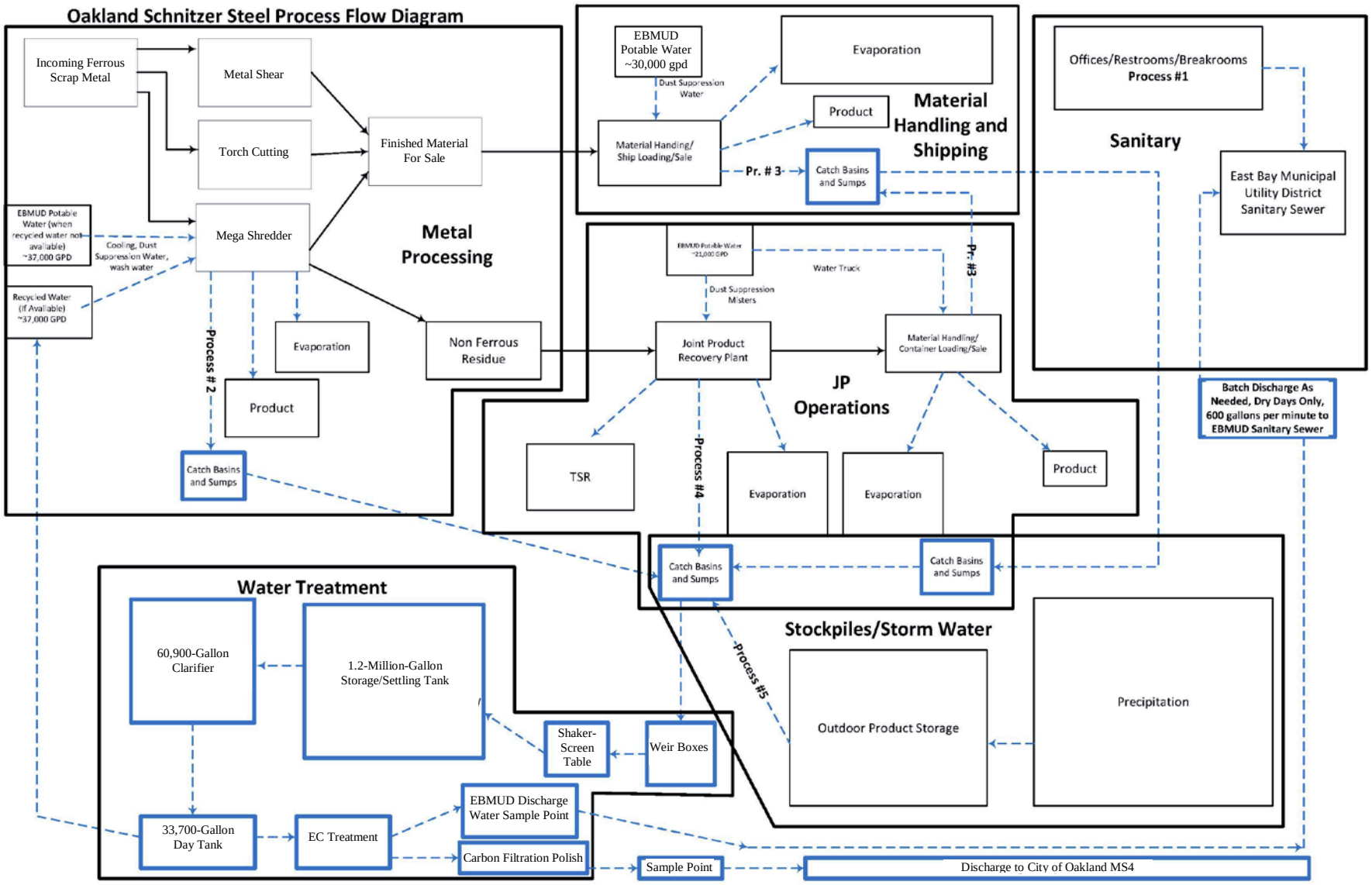
Toxicity Reduction Evaluation (TRE)
Study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemicals responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

ATTACHMENT B – FACILITY MAP

ATTACHMENT B – FACILITY MAP

Due to the dynamic nature of the Discharger's operations, certain activities (e.g., parking) and material storage locations (e.g., heavy melting steel storage, bonus storage, aggregate storage) are subject to change. Facility locations not subject to change include Discharge Point No. 001, the treatment system and related appurtenances, and the storm sewer connection.

ATTACHMENT C – PROCESS FLOW DIAGRAM



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, 13267, 13383.)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment

should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. Approval. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §§ 122.41(l)(3), 122.61.)

III. STANDARD PROVISIONS—MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either (a) the method ML is at or below the level of the applicable water quality criterion for the measured pollutant or pollutant parameter, or (b) the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in a facility's discharge is

high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N or O, for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) the analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits, and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or

terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions—Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k).)

2. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, State, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions—Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions—Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions—Reporting V.B.2 or V.B.3 above shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

6. Any person providing the electronic signature for documents described in Standard Provisions – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the Regional Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (Alternatively, for an existing manufacturing, commercial, mining, or silvicultural discharge as referenced in 40 C.F.R. section 122.42(a), this notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 C.F.R. section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).) (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E above. For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. § 127.2(c)]. U.S. EPA will update and maintain this list. (40 C.F.R. § 122.41(l)(9).)

VI. STANDARD PROVISIONS—ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13268, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Contents

Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Clean Water Act section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.41(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement federal and State laws and regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 C.F.R. sections 122.62, 122.63, and 124.5. If any discrepancies exist between this MRP and the "Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits" (Attachment G), this MRP shall prevail.

B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G. Equivalent test methods must be more sensitive than those specified in 40 C.F.R. section 136 and must be specified in this permit.

II. MONITORING LOCATION

The Discharger shall establish the following monitoring location to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Location

Sampling Location Type	Monitoring Location Name	Monitoring Location Description [1]
Effluent	EFF-001	A point following all phases of treatment and prior to discharge to the City of Oakland storm sewer at which all waste tributary is present.

III. EFFLUENT MONITORING REQUIREMENTS

When discharging, the Discharger shall monitor effluent at Monitoring Location EFF-001 as follows:

Table E-2. Effluent Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	gpm, hours, gallons	Continuous	Continuous
Turbidity	NTU	Grab	1/Day
pH	standard units	Grab	1/Day
Total Suspended Solids	mg/L	Grab	1/Event and at least 2/Year
Total Organic Carbon [2]	mg/L	Grab	1/Event and at least 2/Year
Oil and Grease [3]	mg/L	Grab	1/Event and at least 2/Year
Aluminum	µg/L	Grab	1/Event and at least 2/Year
Iron	µg/L	Grab	1/Event and at least 2/Year
Copper	µg/L	Grab	1/Event and at least 2/Year
Lead	µg/L	Grab	1/Event and at least 2/Year
Zinc	µg/L	Grab	1/Event and at least 2/Year
Acute Toxicity [4]	percent survival	Grab	1/Year

Unit Abbreviations:

gpm = gallons per minute
NTU = nephelometric turbidity units
mg/L = milligrams per liter
µg/L = micrograms per liter

Sample Type:

Continuous = measured continuously
Grab = grab sample

Sampling Frequency:

Continuous = measured continuously
1/Day = once per day (24-hour period)
1/Year = once per year
1/Event and at least 2/Year = once during every discharge of at least 4 hours in duration and at least twice per year regardless of discharge duration

Footnotes:

[1] Flow shall be monitored continuously during discharge and the following information shall be reported in self-monitoring reports:
- Average flow (gpm)
- Duration of discharge event (hours)
- Total flow per discharge event (gallons)

[2] Chemical oxygen demand may be measured in lieu of total organic carbon.

[3] Oil and grease sampling and analysis shall be conducted in accordance with U.S. EPA Method 1664A.

[4] Acute toxicity bioassay tests shall be performed in accordance with MRP section IV.A below.

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor whole effluent acute toxicity at Monitoring Location EFF-001 as follows:

A. Compliance with the acute toxicity effluent limitation shall be evaluated by measuring survival of test organisms exposed to 96-hour static renewal bioassays.

B. Test organisms shall be rainbow trout and fathead minnow. If one species is consistently less sensitive to the discharge than the other, or if acute toxicity is not observed with one species, the Executive Officer may allow monitoring using only one species (e.g., the more sensitive species).

C. Bioassays shall be performed according to the most up-to-date protocols in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,* 5th Edition (EPA-821-R-02-012).

D. Bioassay water monitoring shall include, on a daily basis, residual chlorine, pH, dissolved oxygen, temperature, hardness, and alkalinity. These results shall be reported. If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms is less than 70 percent), the Discharger shall initiate a new test as soon as practical, investigate the cause of the mortalities, and report its findings in the next self-monitoring report. The Discharger shall repeat the test until a test fish survival rate of 70 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

V. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall participate in the Regional Monitoring Program (RMP), which involves collection of data on pollutants and toxicity in water, sediment, and biota of San Francisco Bay.

VI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping, with modifications shown in section VII, below.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) website (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for SMR submittal in the event of a planned service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. **Quarterly SMRs —** Quarterly SMRs shall be due 30 days after the end of each calendar quarter (January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31), covering that quarter. The quarterly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G of this Order. See Provision VI.C.2 (Effluent Characterization Study and Report) and Provision VI.C.6 (Water Pollution Prevention Plan) of this Order for additional information that must be reported with quarterly SMRs.

      Quarterly SMRs shall include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant or waste discharges more frequently than required by this Order, the Discharger shall include the results of such monitoring in the calculations and reporting for the related SMR.

   b. **Annual SMR —** Annual SMRs shall be due July 30 each year, covering the previous four quarters (July 1 through June 30). The annual SMR shall contain the items described in sections V.C.1.f of Attachment G. See also Provision VI.C.2 (Effluent Characterization Study and Report) and Provision VI.C.3 (Pollutant Minimization Program) of the Order for additional information that must be reported with annual SMRs.

   c. **Specifications for Submitting SMRs to CIWQS —** The Discharger shall submit analytical results and other information using one of the following methods:

Table E-3. CIWQS Reporting

Parameter		Method of Reporting	
		EDF/CDF data upload or manual entry	Attached File
All parameters identified in influent, effluent, and receiving water monitoring tables (except Dissolved Oxygen and Temperature)		Required for all results	
Dissolved Oxygen Temperature		Required for monthly maximum and minimum results only [1]	Discharger may use this method for all results or keep records
Antimony Arsenic Beryllium Cadmium Chromium Copper Cyanide Lead Mercury Nickel Selenium	Silver Thallium Zinc Dioxins and Furans (by U.S. EPA Method 1613) Other Pollutants (by U.S. EPA methods 601, 602, 608, 610, 614, 624, and 625)	Required for all results [2]	
Analytical Method		Not required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time		Not required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in this MRP, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order (except for biosolids, sludge, or ash provisions).

The Discharger shall arrange all reported data in a tabular format and summarize data to clearly illustrate whether the Facility is operating in compliance with effluent limitations. The Discharger is not required to duplicate the submittal of data entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format, the Discharger shall electronically submit the data in a tabular format as an attachment.

3. **Monitoring Periods.** Monitoring periods for all required monitoring shall be as set forth below unless otherwise specified:

Table E-4. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All times during discharge
1/Day	Permit effective date	All 24-hour periods during discharge, commencing with start of each discharge
1/Event	Permit effective date	From commencement of each discharge lasting 4 hours or longer until the discharge ceases
1/Week	Sunday following permit effective date or on permit effective date if on Sunday	Sunday through Saturday

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
1/Month	First day of calendar month following permit effective date or on permit effective date if on first day of month	First day of calendar month through last day of calendar month
2/Year	Nearest July 1 before or after permit effective date	July 1 through June 30
1/Year	Nearest July 1 before or after permit effective date	July 1 through June 30
Once	Permit effective date	Anytime such that results are included with application for permit reissuance

4. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means the laboratory considers appropriate.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in the Fact Sheet and Attachments A, D, and G. For purposes of reporting and administrative enforcement by the Regional Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

C. Discharge Monitoring Reports (DMRs)

DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using the Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.

VII. MODIFICATIONS TO ATTACHMENT G

This MRP modifies Attachment G as indicated below:

A. Attachment G section V.C.1.c.2 is revised as follows:

2) When determining compliance with an average monthly or maximum daily effluent limitation and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

   If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

B. Attachment G sections V.C.1.f and V.C.1.g are revised as follows, and section V.C.1.h (Reporting data in electronic format) is deleted.

f. Annual self monitoring report requirements

   By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

   1) Annual compliance summary table of treatment plant performance, including documentation of any blending events (this summary table is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater (this item is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

4) List of approved analyses, including the following:

   (i) List of analyses for which the Discharger is certified;

   (ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

   (iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs addressed as follows, unless the Discharger submits SMRs electronically to CIWQS:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format – *Deleted*

ATTACHMENT F - FACT SHEET

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ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of the Order, the Regional Water Board incorporates this Fact Sheet as its findings supporting the issuance of the Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility:

Table F-1. Facility Information

WDID	2 01S0067
CIWQS Place ID	255924
Discharger	Schnitzer Steel Industries, Inc.
Facility Name	Schnitzer Steel Products Company
Facility Address	1101 Embarcadero West Oakland, CA 94607
	Alameda County
Facility Contact, Title, Phone, Email	Rob Ellsworth, Regional Environmental Manager 916-705-2934, rellsworth@schn.com
Authorized Person to Sign and Submit Reports	Same as Facility contact
Mailing Address	P. O. Box 747 Oakland, CA 94604
Billing Address	Same as mailing address
Facility Type	Industrial, SIC Code 5093 (Scrap and Waste Materials)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	No
Reclamation Requirements	Not Applicable
Permitted Flow	600 gallons per minute (gpm)
Design Flow	600 gpm (0.86 million gallons per day)
Watershed	South Bay Basin
Receiving Water	Oakland Inner Harbor
Receiving Water Type	Marine

A. Schnitzer Steel Industries, Inc., (Discharger) owns and operates the Schnitzer Steel Products Company (Facility), a 26.5-acre scrap metal recycling facility adjacent to the Oakland Inner Harbor at 1101 Embarcadero West, Oakland. Attachment B includes a map of the Facility and its surroundings. The Facility is surrounded by approximately 5,000 feet of perimeter walls. Operations at this site began in 1965.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility intermittently discharges treated stormwater and process wastewater to Oakland Inner Harbor, a water of the United States within the South Bay Basin watershed. Prior to this Order, the

Facility was regulated pursuant to the *Waste Discharge Requirements for Discharges of Storm Water associates with Industrial Activities Excluding Construction Activities*, NPDES Permit No. CAS000001. This Order terminates the Discharger's coverage under the statewide permit because this Order regulates the same discharges.

C. The Discharger filed a report of waste discharge and application for Waste Discharge Requirements (WDRs) and NPDES permit on January 30, 2015, and provided supplemental information on March 31, 2015, and April 20, 2015.

II. FACILITY DESCRIPTION

A. Wastewater Treatment and Controls

1. Facility Operations. Facility operations include shredding light iron products; shearing and torch cutting heavy recyclable steel products; preparing and sorting ferrous and non-ferrous metal recycling feedstock; treating shredder residue; staging of raw scrap metal, recycled metal products, and shredder residue; and shipping finished products and treated shredder residue. Attachment B provides maps indicating the locations of specific activities, including materials storage. Attachment C provides the process flow diagram.

Bulk scrap metal is delivered to the Facility by rail and truck at the main commercial entrance at Embarcadero West, where it is inspected and designated for unloading according to the following segregated material streams:

- "Bonus" heavy melting steel material to be processed by torch cutting into smaller sizes for shipment;
- Standard grade heavy melting steel to be processed by shear cutting into smaller sizes prior to shipment; and
- Light iron products, including automobiles, appliances, and other recyclable light steel materials, to be processed by shredding prior to further processing for removal of ferrous and non-ferrous metals.

At the shredder, light iron products are shredded so that ferrous metals can be magnetically isolated from non-ferrous metals and non-metallic materials, including plastic, glass, fiber, rubber, and other non-metallic materials found in light iron products. The finished isolated ferrous metals are stockpiled and loaded into cargo ships at the Facility's docks. The remaining material, which is a combination of non-ferrous metals and non-metallic materials, known as non-ferrous raw, is further processed at the Joint Products Plant, where non-ferrous metals are separated by metal type from the non-metallic materials and stored in designated bins prior to being placed into shipping containers for transport by truck to a Port of Oakland container loading dock. The residual non-metallic material (referred to as shredder residue) is chemically stabilized using cement and silicate and transported by truck to landfills for use as alternative daily cover.

Non-bulk ferrous and non-ferrous metal scrap is received at the peddler entrance, inspected, and sorted. Larger objects are shredded and processed as described above. Smaller scrap is sorted and segregated by hand into bins. Finished products are baled or stored in cargo containers and transported by truck to a container loading dock at the Port of Oakland.

2. **Wastewater Generation**. Wastewater is generated through multiple Facility operations, including ship loading, shredding, materials handling, wheel washing, oil-water separation, and firefighting. Domestic wastewater is discharged to the local sanitary sewer system.

   a. **Ship Loading**. Ships are loaded either directly from trucks on the concrete pier crane dock with a skiff pan or through a conveyor system that runs along the wooden pier. Approximately 30,000 gallons per day of potable water is sprayed to minimize fugitive dust generated by ship loading operations, which typically occur once or twice per month for an average of three to four days per event. Spilled product, dust, dirt, rubbish, refuse, and debris are removed and disposed of offsite (see "Sludge and Solids Management," below).

      i. **Concrete Pier Crane Dock.** The pier crane dock has concrete curbs, drain inlets, and pipes and pumps that collect and convey runoff for treatment. It also has splash guards to contain water. Periodically, the pier crane dock is power-washed or swept. Runoff from dust suppression and washdown is collected by a containment system, transferred upland, and re-used onsite (see "Onsite Water Recycling," below).

      ii. **Wooden Pier Conveyor System.** The wooden pier has a shrouded conveyor system with a containment tray beneath the conveyor, rubber edge guards, and a telescoping arm that can fully extend into ships to place materials. The portion that extends over open water is enclosed. The pier is partially lined with recycled conveyor belts and surrounded by wooden beams to capture debris. The pier is swept after loading operations. Water that falls into the containment tray either evaporates or is transferred upland for onsite re-use (see "Onsite Water Recycling," below). Conditions at the wooden pier will improve with implementation of Provision VI.C.8.

   b. **Shredding**. Approximately 30,000 to 50,000 gallons per day of onsite recycled water (supplemented by potable water) is injected into the shredder to control heat and abate dust emissions. Residual water not evaporated by the latent heat of the shredding process is captured by a series of pumps and sumps and conveyed to a 1.2-million-gallon tank to be recycled (see "Onsite Water Recycling," below).

   c. **Materials Handling**. Various incoming scrap, processed scrap metal products, and process residues are stored outdoors in large stockpiles. During internal transfer and handling operations, approximately 21,000 gallons per day of potable water is sprayed on internal access roads and the working faces of the stockpiles for dust suppression. The runoff is collected by the stormwater conveyance system and re-used onsite (see "Onsite Water Recycling," below).

   d. **Wheel Washing**. Two large, custom, industrial wheel wash systems are used to clean the wheels and undercarriages of trucks entering the pier crane dock and exiting the Facility. The systems collect, treat, and reuse the wash water in a closed loop system. Periodically, potable water is supplied to the systems and sediment is emptied into a dewatering bin and disposed of offsite (see "Sludge and Solids Management," below).

   e. **Oil-Water Separation**. Three oil-water separators collect water draining from the shear area, the maintenance shop, and the northern part of the outdoor product storage area. Treated effluent from the oil-water separators is pumped to the onsite water recycling system for reuse in the metal shredding process. Free petroleum product is removed from

the oil-water separators by vacuum truck and disposed of offsite (see "Sludge and Solids Management," below).

f. Firefighting. In the event of a fire at the Facility, potable water is used to extinguish the fire. The runoff is captured by the stormwater conveyance system and re-used onsite (see "Onsite Water Recycling," below).

3. Onsite Water Recycling. The Discharger retains stormwater and process wastewater onsite for recycling and reuse. Stormwater and process wastewater are collected by means of sheet flow and a collection system consisting of drain inlets, sumps, and pump stations that collect and convey surface drainage to the center of the Facility near the shredder. Portable pumps are also used to convey ponded water to the collection system.

The comingled stormwater and process wastewater is directed to a weir box adjacent to the shredder, where solids are allowed to settle out. From there, the wastewater is pumped to another weir box for further solids settling before flowing through a screening system to remove more solids prior to storage in a 1.2-million-gallon storage tank. The wastewater in the storage tank is sent to a 60,900-gallon clarifier for additional solids removal before flowing to a 33,700-gallon day tank that serves as the feed tank for the shredder cooling and dust suppression system. The 33,700-gallon day tank also serves as a surge tank feeding the onsite wastewater treatment system. Residual solids and sediment are collected, sampled, and disposed of offsite.

The Discharger maximizes the use of onsite recycled water in the shredding operation and supplements it with potable water only when necessary (typically during the dry season). During the wet season, when the stormwater and process wastewater exceed (or could exceed) the holding capacity of the 1.2-million-gallon storage tank, the Discharger routes the wastewater for treatment before discharge (see "Wastewater Treatment and Discharge," below).

4. Wastewater Treatment and Discharge. The Discharger operates a multistage wastewater treatment system that treats excess wastewater and discharges the effluent to the sanitary sewer under East Bay Municipal Utility District (EBMUD) Wastewater Discharge Permit No. 02300311. When EBMUD allows discharge to the sanitary sewer, the Discharger may discharge an unlimited volume of water to the sanitary sewer at a maximum flow rate of 600 gallons per minute. Under the terms and conditions of the EBMUD permit, the Discharger may not discharge to the sanitary sewer during a rain event (or within 24 hours after a rain event), which is defined as any precipitation greater than a drizzle. Under such conditions, the Discharger stores the runoff and treated wastewater onsite until discharge to the sanitary sewer can resume. If rain persists or if substantial additional rain is forecast, then the Discharger further treats its wastewater by routing it through activated carbon units and discharges the polished effluent to a City of Oakland storm sewer (Discharge Point No. 001) pursuant to this Order. The Discharger actively manages its wastewater through onsite storage and by discharging to the sanitary sewer as much as possible. Discharge to the storm sewer occurs only in the event of significant or extended periods of precipitation.

The treatment system is designed to treat up to 600 gallons of wastewater per minute and includes storage and preliminary clarification, electrocoagulation, clarification and filtration, and carbon polishing. Attachment C provides a schematic process flow diagram.

a. **Storage and Preliminary Clarification**. Wastewater from the 1.2-million gallon storage tank is pumped to a 60,900-gallon preliminary clarifier. From there, the wastewater flows to the 33,700-gallon day tank prior to being sent for electrocoagulation.

b. **Electrocoagulation**. Wastewater from the pre-treatment conditioning tank is distributed through a series of electrocoagulation treatment cells, where highly charged polymeric metal hydroxides are introduced. This neutralizes the surface charges on metal or other pollutant-containing colloidal and suspended solids to facilitate agglomeration, coagulation, and subsequent separation.

c. **Clarification and Filtration**. When the wastewater leaves the electrocoagulation treatment cells, it enters a clarification system where coagulated particles are removed by gravity. The wastewater then undergoes sand filtration to further remove solids. The filtrate is pumped to a sanitary sewer connection located near the Joint Products Plant area and discharged to the sanitary sewer under the terms of the EBMUD permit.

d. **Carbon Polishing**. Any water not discharged to the sanitary sewer is passed through additional granulated activated carbon treatment to remove organics and other trace contaminants prior to discharge to the storm sewer (Discharge Point No. 001).

5. **Other Discharges.** Although this Order generally prohibits discharge of untreated stormwater, process wastewater, and waste materials, it also recognizes the potential for incidental dust suppression water droplets, incidental spilled product from ship loading activity, fugitive dust or dirt, or wind-blown debris to be discharged despite implementation of the BMPs listed in Provision VI.C.6.d of the Order.

6. **Sludge and Solids Management.** Free petroleum products generated from the oil-water separators, and residual solids and sediment generated during ship loading, wheel washing, onsite water recycling, and other housekeeping activities, are periodically removed from their containment systems. The sludge generated by the wastewater treatment system is removed on an as-needed basis (e.g., when the sludge starts to affect the effluent storage capacity). All solids and sludge are profiled and disposed of offsite at permitted landfills.

B. Discharge Point and Receiving Water

Fully-treated effluent not used onsite or discharged to the sanitary sewer is discharged to a 60-inch-diameter storm drain that traverses the eastern side of the Facility (Discharge Point No. 001). The storm drain discharges to the Oakland Inner Harbor, which is part of Lower San Francisco Bay.

C. Compliance Summary

This Order is a new NPDES permit. Prior to adoption of this Order, the Facility was regulated under NPDES Permit No. CAS000001 (industrial stormwater general permit), most recently issued through State Water Board Order No. 2014-0057-DWQ and, prior to that, State Water Board Order No. 97-03-DWQ.

A compliance inspection report dated March 29, 2012, indicates that the Discharger violated Order No. 97-03-DWQ by discharging wastes, including process sediment, industrial wastewater, and

debris from its shredding operation, into surface waters and at places where they were (or could have been) discharged to surface waters. Specifically, the pier crane dock (including the access bridge) and the ship loading conveyor did not fully contain process wastewater, process sediment, and other solids, which could have been discharged to the waters below. The Facility, which is mostly unpaved, is constructed like a large "bowl" that collects water onsite. Pooled water comes into contact with scrap, product, and waste piles and errant debris throughout the site. On March 29, 2012, various sheens were visible on the pooled water, indicating the presence of pollutants. Trucks driving through unpaved muddy areas with pooled water left wet sediment tracks on the access road leading from the site exit to Embarcadero West, which was covered with a layer of sediment and dust. Debris from the shredding operation was visible on neighboring properties adjacent to storm drains susceptible to runoff to the Oakland Inner Harbor.

On January 2, 2013, the Regional Water Board issued Cleanup and Abatement Order No. R2-2013-1001, which, among other things, required the Discharger to propose and implement best management practices (BMPs) to reduce or prevent pollutant discharges into the Oakland Inner Harbor. The Discharger submitted a new Storm Water Pollution Prevention Plan, BMP Plan, and Onsite Water Recycling Plan and Stockpile Management Plan on February 15, 2013, and revised plans on November 4, 2014, that describe the BMPs implemented at the Facility to date, including construction of a new wastewater treatment system (described in Fact Sheet section II.A.4, above) to treat stormwater not reused onsite. In subsequent correspondence dated July 2, 2015, the Regional Water Board acknowledged significant BMPs were implemented that improve water quality but stated that additional improvements are needed.

D. Planned Changes

During the term of this Order, the Discharger is considering a project to design and build enclosures for the shredder and the Joint Products Plant to minimize aerial dispersion of waste materials. This possible change is mentioned here only for informational purposes and is not a requirement of this Order *per se*, except to the extent that it pertains to compliance with this Order's requirements. Mention here does not imply Regional Water Board authorization. The Discharger may need to seek permits or permit modifications to implement this change.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

A. Legal Authorities. This Order serves as WDRs pursuant to Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from the Facility to surface waters.

B. California Environmental Quality Act. Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act, Public Resources Code division 13, chapter 3 (commencing with § 21100). Compliance with the provisions of CEQA is only required for NPDES permit actions pertaining to new sources as defined by the federal Clean Water Act (i.e., sources constructed after New Source Performance Standards were published). The Facility is not a new source because U.S. EPA has not published New Source Performance Standards for this discharge category.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The San Francisco Bay Regional Water Board (Regional Water Board) adopted *The Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, this Order implements State Water Board Resolution 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on San Francisco Bay, total dissolved solids levels in the receiving water exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. The MUN designation therefore does not apply to the receiving water. Beneficial uses applicable to Oakland Inner Harbor are as follows:

Table F-2. Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001	Oakland Inner Harbor	Estuarine habitat (EST) Wildlife habitat (WILD) Contact water recreation (REC-1) Non-contact water recreation (REC-2) Navigation (NAV)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. U.S. EPA amended the CTR on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives, and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulations at 40 C.F.R. section 131.12 require that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy through State Water Board Resolution 68-16, "*Statement of Policy with Respect to Maintaining High Quality of Waters in California*," which is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan

implements, and incorporates by reference, both the State and federal antidegradation policies. Permitted discharges must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all applicable Endangered Species Act requirements.

D. Impaired Waters on CWA 303(d) List. In October 2011, U.S. EPA approved a revised list of impaired waters prepared pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Where it has not done so already, the Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for waters on the 303(d) list. TMDLs establish wasteload allocations for point sources and load allocations for non-point sources and are established to achieve the water quality standards for the impaired waters.

Oakland Inner Harbor is listed as impaired by chlordane, DDT, dieldrin, dioxins and furans, invasive species, mercury, PCBs, and selenium. On February 12, 2008, U.S. EPA approved a TMDL for mercury in San Francisco Bay. On March 29, 2010, U.S. EPA approved a TMDL for PCBs in San Francisco Bay. Neither TMDL contains a wasteload allocation for this discharge. Therefore, this Order prohibits mercury and PCBs discharges unless and until a watershed permit (e.g., NPDES Permit No. CA 0038849) allows them. No TMDLs have been completed yet for the other pollutants on the 303(d) list; available data do not indicate that the Facility discharges those pollutants in detectable quantities.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of receiving waters.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A** (No discharge of treated wastewater at a location or in a manner different from that described in this Order): This prohibition is based on 40 C.F.R. section 122.21(a), duty to apply, and Water Code section 13260, which requires filing an application and Report of Waste Discharge before discharges can occur. Discharges not described in the permit application and Report of Waste Discharge, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B** (No discharge at Discharge Point No. 001 whenever EBMUD accepts wastewater via the sanitary sewer): Basin Plan Table 4-1, Discharge Prohibition 1, prohibits discharges not receiving a minimum of 10:1 initial dilution. This Order grants an exception to this prohibition based, in part, on the fact that the discharge is intermittent and occurs only during significant storms. This prohibition ensures that the Facility is operated as intended.

   Basin Plan section 4.2 provides for exceptions to Basin Plan Discharge Prohibition 1 under certain circumstances:

   - An inordinate burden would be placed on the Discharger relative to the beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means;
   - A discharge is approved as part of a reclamation project;
   - Net environmental benefits will be derived as a result of the discharge; or
   - A discharge is approved as part of a groundwater cleanup project.

   The Basin Plan further states:

   > Significant factors to be considered by the Regional Water Board in reviewing requests for exceptions will be the reliability of the discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water and the environmental consequences of such discharges.

   This Order grants an exception for discharges to the Oakland Inner Harbor for the following reasons:

   a. An inordinate burden would be placed on the Discharger relative to the beneficial uses protected if this Order were to require the discharge to achieve 10:1 dilution within the Oakland Inner Harbor. Constructing and operating a deepwater outfall is burdensome since the discharge occurs only during significant storms. Additionally, the municipal storm outfall is not within the control of the Discharger. Moreover, since discharge is allowed only during significant storms, there are high turbulent flows in the municipal storm system to rapidly dilute and diffuse the discharge prior to it entering the Oakland Inner Harbor, which achieves the intended purpose of Basin Plan Prohibition 1.

   b. An equivalent level of environmental protection is provided by various means: (1) the allowance of discharge only when necessary during significant storms (Prohibition III.B) when there will also be high diluting flows in the municipal storm sewer system and

receiving water; (2) the requirement for multistage treatment using electrocoagulation and other technologies including carbon adsorption (Prohibitions III.D and E, and treatment description in Fact Sheet section II.A.4, above); and (3) requirements for treatment system optimization and standard operation and maintenance procedures to ensure the highest quality of discharge (Provisions VI.C.4 and VI.C.5).

3. **Discharge Prohibition III.C** (No discharge greater than 600 gallons per minute at Discharge Point No. 001): This prohibition ensures that wastewater flows do not exceed the design capacity of the wastewater treatment facility. Discharge in excess of the design capacity could compromise treatment performance.

4. **Discharge Prohibition III.D** (No bypass of untreated or partially-treated effluent): This prohibition is based on 40 C.F.R. section 122.41(m). Bypass of treatment is prohibited except in accordance with 40 C.F.R. section 122.41(m) (see Attachment D section I.G).

5. **Discharge Prohibition III.E** (No discharge of untreated stormwater, process wastewater, or waste materials, except as authorized by this permit): This prohibition is based on Basin Plan Discharge Prohibition 7 and ensures that stormwater, process wastewater, and waste materials, such as dust suppression water, wash water, spilled product, fugitive dust, dirt, rubbish, refuse, or debris, are not discharged into the Oakland Inner Harbor or other waters of the United States. This prohibition does not pertain to incidental amounts of waste materials discharged despite implementation of the BMPs listed in Provision VI.C.6.d of the Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44 require that permits include conditions meeting technology-based requirements at a minimum and any more stringent effluent limitations necessary to meet water quality standards. The CWA requires that technology-based effluent limitations be established based on several levels of control:

- **Best practicable treatment control technology (BPT).** BPT represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- **Best available technology economically achievable (BAT).** BAT represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- **Best conventional pollutant control technology (BCT).** BCT represents the control from existing industrial point sources of conventional pollutants, including biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease. The BCT standards are established after considering the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result and also the cost effectiveness of additional industrial treatment beyond BPT.

- **New source performance standards (NSPS).** NSPS represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines, and standards representing application of BPT, BAT, BCT, and NSPS. U.S. EPA has done so for many types of industries but not scrap metal recycling.

Basin Plan Table 4-2 contains technology-based effluent limitations for pH, residual chlorine, settleable matter, and oil and grease that apply to all treatment facilities. It also contains effluent limitations for biochemical oxygen demand (BOD) and total suspended solids (TSS) that the Regional Water Board may, at its option, apply to non-sewage discharges as long as doing so does not preempt any of U.S. EPA's effluent limitations, guidelines, and standards.

CWA section 402(a)(1) and 40 C.F.R. section 125.3 authorize the use of best professional judgment to derive technology-based effluent limitations on a case-by-case basis whenever U.S. EPA has not promulgated effluent limitations, guidelines, and standards. When best professional judgment is used, the Regional Water Board must consider specific factors outlined in 40 C.F.R. section 125.3.

2. Effluent Limitations

For discharges from Discharge Point No. 001, this Order imposes the technology-based pH and oil and grease effluent limitations from Basin Plan Table 4-2 because these limitations apply to all treatment facilities. It does not impose the residual chlorine limitation from Basin Plan Table 4-2 because the Discharger's treatment system does not involve chlorination, and any residual chlorine from potable water used onsite would dissipate before discharge. It does not impose BOD effluent limitations because the discharge does not contain sewage. Finally, it does not impose settleable matter effluent limitations because the treatment system includes sand filtration and carbon filtration in addition to sedimentation, and all but the finest suspended particulates are expected to be removed from the wastewater.

Based on best professional judgment, this Order imposes the TSS effluent limitations from Basin Plan Table 4-2 for Discharge Point No. 001 discharges because the treatment system is designed to remove metal and other pollutant-containing particular matter (electrocoagulation is a key component of the treatment train). TSS removal is a good indicator of treatment system performance. TSS is a conventional pollutant and, therefore, subject to BPT and BCT levels of control. BAT controls do not apply because they only apply to toxic and non-conventional pollutants. NSPS controls do not apply because the Facility is not a "new source" (i.e., a source created after U.S. EPA establishes NSPS effluent limitations, guidelines, and standards, which it has not done for scrap metal recycling). When using best professional judgment to impose technology-based effluent limitations based on BPT and BCT controls, 40 C.F.R. section 125.3(d) requires that the Regional Water Board consider the following factors:

Table F-3. Factors Considered Pursuant to 40 C.F.R. section 125.3(d)

Factors	Considerations
Cost relative to pollutant reduction benefits	The Discharger indicates that the treatment system cost more than $2 million to build. It expects ongoing operations and maintenance to cost approximately $1,900 per million gallons per year (or about $1,600 for each operating day). The treatment system reduces TSS concentrations from as high as 100 mg/L to less than 4 mg/L. As such, it reduces pollutant loads delivered to Discharge Point No. 001 and the sanitary sewer system.
Comparison of cost and pollutant reductions from publicly-owned treatment works to those from this Facility	The treatment system cost and pollutant reduction is comparable to those of a publicly-owned treatment works because this Order imposes the same TSS effluent limits as the Regional Water Board assigns to publicly-owned treatment works (both based on Basin Plan Table 4-2).
Age of equipment and facilities involved	The treatment system is new; construction was completed in August 2015.
Process employed	The treatment system employs electrocoagulation and other processes designed primarily to remove solids (e.g., TSS) from scrap metal recycling wastewater.
Engineering aspects of application or control techniques	Electrocoagulation effectively removes particles ranging from suspended solids to sub-micrometer colloids. It generates less volumes of sludge and the sludge is more shear resistant and more readily dewatered when compared to conventional chemical coagulation. It is a common technique used to treat industrial wastewater containing metals.
Process changes	The treatment system is new; no process changes are necessary.
Non-water quality environmental impacts (including energy requirements)	The Port of Oakland conducted an Initial Study, dated November 14, 2014, pursuant to the California Environmental Quality Act. The study concluded that treatment system construction and other site improvements could not have a significant environmental impact on the environment; therefore, the Port of Oakland certified a Negative Declaration on January 6, 2015.

Due to the intermittent nature of the discharge, this Order specifies that compliance with the average monthly effluent limits for oil and grease and TSS is to be based on at least two monitoring results collected within the same calendar month. For months during which the Discharger cannot collect a second sample due to lack of additional discharge events, compliance is to be evaluated based only on the maximum daily effluent limits.

This Order (section IV.B) cites Provision VI.C.6 as a narrative effluent limitation applicable to Discharge Point No. 001 and any other discharges that comply with Discharge Prohibition III.E of this Order. According to State Water Board Order No. 2014-0057-DWQ, which, for the most part, contains essentially the same requirements, these requirements reflect BAT and BCT to reduce or prevent discharges of pollutants in a manner that reflects best industry practice considering technological availability and economic practicability and achievability. This standard restates the standard U.S. EPA articulated in its 2015 *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* and its accompanying Fact Sheet. This approach is authorized by 40 C.F.R. section 122.44(k), which allows BMPs to be used in lieu of numeric effluent limitations to control or abate pollutant discharges. Because BAT is more stringent than BPT, additional measures to implement BPT are unnecessary.

Similarly, this Order (section IV.B) cites Provision VI.C.4 as a narrative effluent limitation to ensure that discharges reflect BAT and BCT.

C. Water Quality-Based Effluent Limitations

1. Scope and Authority

This Order contains Water Quality Based Effluent Limitations (WQBELs) that implement water quality objectives that protect beneficial uses. CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than federal technology-based requirements where necessary to achieve applicable water quality standards. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs must be established using (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting a narrative criterion, supplemented with relevant information (40 C.F.R. § 122.44[d][1][vi]). The process for determining reasonable potential and calculating WQBELs is intended to achieve applicable water quality objectives and criteria and protect designated uses of receiving waters as specified in the Basin Plan. This Order imposes numeric effluent limitations for pollutants with reasonable potential to cause or contribute to exceedances of water quality standards.

The discussion below focuses on numeric WQBELs for Discharge Point No. 001. To the extent that this Order seeks to control other potential discharges that comply with Discharge Prohibition III.E, it is infeasible to establish numeric effluent limitations; therefore, Provision VI.C.6 of this Order also serves as a narrative WQBEL. Regulations at 40 C.F.R. section 122.44(k)(4) authorize the use of BMPs to control or abate pollutant discharges when numeric effluent limitations are infeasible. Compliance with these conditions is expected to control discharges sufficiently to meet applicable water quality standards.

2. Water Quality Criteria and Objectives

a. Basin Plan Objectives. The Basin Plan specifies numeric water quality objectives for numerous pollutants and narrative water quality objectives for others, including toxicity. The narrative toxicity objective states, “All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.”

b. CTR Criteria. The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of “water and organisms” and others are for consumption of “organisms only.” The criteria applicable to “organisms only” apply to the Oakland Inner Harbor because it does not support the municipal or domestic supply (MUN) beneficial use (i.e., it is not a drinking water source).

c. NTR. The NTR establishes numeric aquatic life and human health criteria for a number of toxic pollutants for San Francisco Bay waters upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. The NTR criteria apply to the Oakland Inner Harbor.

d. Receiving Water Salinity. Basin Plan section 4.6.2 (like the CTR and NTR) states that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water are to be considered in determining applicable water quality objectives. Freshwater criteria apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities between these two categories, or tidally-influenced freshwaters that support estuarine beneficial uses, the water quality objectives are the lower of the salt or freshwater objectives (the latter calculated based on ambient hardness) for each substance.

The Oakland Inner Harbor is a marine water body based on salinity data collected through Regional Monitoring Program (RMP). Salinity data collected from 1993 to 2013 at Yerba Buena Island (station BC 10), the RMP monitoring location nearest the discharge point, indicates that the salinity is less than 1 parts per thousand zero percent of the time and greater than 10 parts per thousand in 100 percent of the time. The Oakland Inner Harbor is therefore a marine water, and the marine water quality criteria and objectives apply.

e. Site-Specific Metals Translators. Effluent limitations for metals must be expressed as total recoverable metal (40 C.F.R. § 122.45[c]). Since the water quality objectives for metals are typically expressed as dissolved metal, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR contains default translators; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon may affect the form of metal (dissolved, non-filterable, or otherwise) present and therefore available to cause toxicity. In general, dissolved metals are more available and more toxic to aquatic life than other forms. Site-specific translators can account for site-specific conditions, thereby preventing overly stringent or under-protective water quality objectives.

As listed in the table below, this Order incorporates site-specific translators for copper from Basin Plan Table 7.2.1-2 and site-specific translators for nickel from *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (Clean Estuary Partnership, March 2005). CTR default translators were used for all other metals.

Table F-4. Site-Specific Translators

Pollutant	Acute	Chronic
Copper	0.87	0.73
Nickel	0.85	0.65

f. Sediment Quality Objectives. The *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination,

are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The policy requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

3. Need for Effluent Limitations (Reasonable Potential Analysis)

a. Available Information. When this Order was drafted, the Facility did not yet provide the full treatment described in Fact Sheet section II.A.4 and no performance data were available. Therefore, the reasonable potential analysis is based on performance data from a similar treatment system located in Surrey, British Columbia. The Surrey system closely resembles the treatment system at the Facility except that it does not contain the final carbon polishing step. Relying on Surrey facility data is, therefore, a conservative approach because the resulting reasonable potential analysis is based on data that could reflect higher pollutant concentrations than those of Facility effluent.

Data are available for three samples collected at the Surrey facility in March 2014, October 2014, and March 2015. The March 2014 data relate to volatile organics and polycyclic aromatic hydrocarbons. The October 2014 and March 2015 data relate to metals.

For ambient background data, this reasonable potential analysis relies on RMP data collected at Yerba Buena Island (station BC10) from 1993 through 2013, and additional Bay Area Clean Water Agencies data from *San Francisco Bay Ambient Water Monitoring Interim Report* (2003) and *Ambient Water Monitoring: Final CTR Sampling Update* (2004). These reports contain monitoring results from 2002 and 2003 for priority pollutants the RMP did not monitor at the time.

In some cases, reasonable potential cannot be determined because effluent data are limited or ambient background concentrations are unavailable. Provision VI.C.2 of the Order requires the Discharger to continue monitoring for these constituents in its effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether numeric effluent limitations are necessary.

b. Toxic Pollutants

i. Methodology. SIP section 1.3 sets forth the methodology used for this Order to assess whether a toxic pollutant has reasonable potential to exceed a water quality objective. The analysis begins with identifying the maximum effluent concentration (MEC) observed for each pollutant based on available effluent concentration data and the ambient background concentration (B). SIP section 1.4.3 states that ambient background concentrations are either the maximum ambient concentration observed or, for water quality objectives intended to protect human health, the arithmetic mean of observed concentrations. There are three triggers in determining reasonable potential:

- **Trigger 1** is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective (MEC ≥ water quality objective).

- **Trigger 2** is activated if the ambient background concentration observed in the receiving water is greater than the water quality objective (B > water quality objective) *and* the pollutant is detected in any effluent sample.

- **Trigger 3** is activated if a review of other information indicates that a WQBEL is needed to protect beneficial uses.

ii. Analysis. The maximum effluent concentrations, most stringent applicable water quality criteria and objectives, and ambient background concentrations used in the analysis are presented in the following table, along with the reasonable potential analysis results (yes or no) for each pollutant. Reasonable potential was not determined for all pollutants because there are not water quality objectives for all pollutants. The analysis indicates that no pollutant exhibits reasonable potential to cause or contribute to exceedances of water quality objectives. However, Basin Plan section 7.2.1.2 requires copper WQBELs.

Table F-5. Reasonable Potential Analysis

CTR No.	Priority Pollutant	Governing Water Quality Objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Result [3]
1	Antimony	4,300	6.0	1.8	No
2	Arsenic	36	0.36	2.46	No
3	Beryllium	No Criteria	<5	0.22	U
4	Cadmium	9.4	0.079	0.13	No
5a	Chromium (III)	No Criteria	<1	4.4	U
5b	Chromium (VI)	50.4	--	4.4	No
6	Copper	8.2	3.0	2.5	No [4]
7	Lead	8.5	5.7	0.8	No
8	Mercury	---	<0.2	---	--- [5]
9	Nickel	13	8.1	3.7	No
10	Selenium	5.0	<0.1	0.39	No
11	Silver	2.2	<0.05	0.052	No
12	Thallium	6.3	<0.2	0.21	No
13	Zinc	86	21.2	5.1	No
14	Cyanide	2.9	Unavailable	<0.4	U [6]
15	Asbestos	No Criteria	Unavailable	Unavailable	U
16	2,3,7,8-TCDD	1.4 x 10-8	Unavailable	$8.2x10^{-9}$	U
17	Acrolein	780	Unavailable	<0.50	U
18	Acrylonitrile	0.66	Unavailable	0.03	U
19	Benzene	71	0.98	<0.05	No
20	Bromoform	360	<1	<0.5	No
21	Carbon Tetrachloride	4.4	<0.5	0.06	No
22	Chlorobenzene	21,000	<1	<0.5	No

CTR No.	Priority Pollutant	Governing Water Quality Objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Result [3]
23	Chlorodibromomethane	34	<1	<0.05	No
24	Chloroethane	No Criteria	<1	<0.5	U
25	2-Chloroethylvinyl ether	No Criteria	Unavailable	<0.5	U
26	Chloroform	No Criteria	Unavailable	<0.5	U
27	Dichlorobromomethane	46	<1	<0.05	No
28	1,1-Dichloroethane	No Criteria	<1	<0.05	U
29	1,2-Dichloroethane	99	<1	0.04	No
30	1,1-Dichloroethylene	3.2	<1	<0.5	No
31	1,2-Dichloropropane	39	<1	<0.05	No
32	1,3-Dichloropropylene	1,700	<1	<0.5	No
33	Ethylbenzene	29,000	3.7	<0.5	No
34	Methyl Bromide	4,000	Unavailable	<0.5	U
35	Methyl Chloride	No Criteria	Unavailable	<0.5	U
36	Methylene Chloride	1,600	Unavailable	22	U
37	1,1,2,2-Tetrachloroethane	11	<1	<0.05	No
38	Tetrachloroethylene	8.85	<1	<0.05	No
39	Toluene	200,000	16	<0.3	No
40	1,2-Trans-Dichloroethylene	140,000	Unavailable	<0.5	U
41	1,1,1-Trichloroethane	No Criteria	<1	<0.5	U
42	1,1,2-Trichloroethane	42	<1	<0.05	No
43	Trichloroethylene	81	<1	<0.5	No
44	Vinyl Chloride	525	<1	<0.5	No
45	2-Chlorophenol	400	Unavailable	<1.2	U
46	2,4-Dichlorophenol	790	0.12	<1.3	No
47	2,4-Dimethylphenol	2,300	Unavailable	<1.3	U
48	2-Methyl- 4,6-Dinitrophenol	765	Unavailable	<1.2	U
49	2,4-Dinitrophenol	14,000	Unavailable	<0.7	U
50	2-Nitrophenol	No Criteria	Unavailable	<1.3	U
51	4-Nitrophenol	No Criteria	Unavailable	<1.6	U
52	3-Methyl 4-Chlorophenol	No Criteria	Unavailable	<1.1	U
53	Pentachlorophenol	7.9	Unavailable	<1	U
54	Phenol	4,600,000	Unavailable	<1.3	U
55	2,4,6-Trichlorophenol	6.5	Unavailable	<1.3	U
56	Acenaphthene	2,700	0.15	0.0019	No
57	Acenaphthylene	No Criteria	<0.05	0.0013	U
58	Anthracene	110,000	<0.05	0.00059	No
59	Benzidine	0.00054	Unavailable	<0.0015	U
60	Benzo(a)Anthracene	0.049	<0.05	0.0053	No
61	Benzo(a)Pyrene	0.049	<0.01	0.0033	No
62	Benzo(b)Fluoranthene	0.049	<0.05	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	<0.05	0.0045	U
64	Benzo(k)Fluoranthene	0.049	<0.05	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	Unavailable	<0.3	U
66	Bis(2-Chloroethyl)Ether	1.4	Unavailable	<0.00015	U

CTR No.	Priority Pollutant	Governing Water Quality Objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Result [3]
67	Bis(2-Chloroisopropyl)Ether	170000	Unavailable	Unavailable	U
68	Bis(2-Ethylhexyl) Phthalate	5.9	Unavailable	<0.7	U
69	4-Bromophenyl Phenyl Ether	No Criteria	Unavailable	<0.23	U
70	Butylbenzyl Phthalate	5,200	Unavailable	0.0056	U
71	2-Chloronaphthalene	4,300	Unavailable	<0.3	U
72	4-Chlorophenyl Phenyl Ether	No Criteria	Unavailable	<0.3	U
73	Chrysene	0.049	<0.05	0.0028	No
74	Dibenzo(a,h)Anthracene	0.049	<0.05	0.00064	No
75	1,2-Dichlorobenzene	17,000	Unavailable	<0.3	U
76	1,3-Dichlorobenzene	2,600	Unavailable	<0.3	U
77	1,4-Dichlorobenzene	2,600	Unavailable	<0.3	U
78	3,3 Dichlorobenzidine	0.077	Unavailable	<0.001	U
79	Diethyl Phthalate	120,000	Unavailable	<0.21	U
80	Dimethyl Phthalate	2,900,000	Unavailable	<0.21	U
81	Di-n-Butyl Phthalate	12,000	Unavailable	0.016	U
82	2,4-Dinitrotoluene	9.1	Unavailable	<0.27	U
83	2,6-Dinitrotoluene	No Criteria	Unavailable	<0.29	U
84	Di-n-Octyl Phthalate	No Criteria	Unavailable	<0.38	U
85	1,2-Diphenylhydrazine	0.54	Unavailable	0.0037	U
86	Fluoranthene	370	0.079	0.011	No
87	Fluorene	14000	0.15	0.0021	No
88	Hexachlorobenzene	0.00077	Unavailable	0.000022	U
89	Hexachlorobutadiene	50	Unavailable	<0.3	U
90	Hexachlorocyclopentadiene	17,000	Unavailable	<0.3	U
91	Hexachloroethane	8.9	Unavailable	<0.2	U
92	Indeno(1,2,3-cd)Pyrene	0.049	<0.05	0.0040	No
93	Isophorone	600	Unavailable	<0.3	U
94	Naphthalene	No Criteria	3.39	0.013	U
95	Nitrobenzene	1900	Unavailable	<0.25	U
96	N-Nitrosodimethylamine	8.1	Unavailable	<0.3	U
97	N-Nitrosodi-n-Propylamine	1.4	Unavailable	<0.001	U
98	N-Nitrosodiphenylamine	16	Unavailable	<0.001	U
99	Phenanthrene	No Criteria	0.26	0.0095	U
100	Pyrene	11,000	<0.1	0.019	No
101	1,2,4-Trichlorobenzene	No Criteria	Unavailable	<0.3	U
102	Aldrin	0.00014	Unavailable	$2.8x10^{-6}$	U
103	Alpha-BHC	0.013	Unavailable	0.00050	U
104	Beta-BHC	0.046	Unavailable	0.00041	U
105	Gamma-BHC	0.063	Unavailable	0.00070	U
106	Delta-BHC	No Criteria	Unavailable	0.000053	U
107	Chlordane	0.00059	Unavailable	0.00018	U
108	4,4'-DDT	0.00059	Unavailable	0.00017	U
109	4,4'-DDE	0.00059	Unavailable	0.00069	U
110	4,4'-DDD	0.00084	Unavailable	0.00031	U

CTR No.	Priority Pollutant	Governing Water Quality Objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Result [3]
111	Dieldrin	0.00014	Unavailable	0.00026	U
112	Alpha-Endosulfan	0.0087	Unavailable	0.000031	U
113	beta-Endosulfan	0.0087	Unavailable	0.000069	U
114	Endosulfan Sulfate	240	Unavailable	0.000082	U
115	Endrin	0.0023	Unavailable	0.000040	U
116	Endrin Aldehyde	0.81	Unavailable	Unavailable	U
117	Heptachlor	0.00021	Unavailable	0.000019	U
118	Heptachlor Epoxide	0.00011	Unavailable	0.000094	U
119-125	PCBs sum	---	---	---	--- [5]
126	Toxaphene	0.0002	Unavailable	Unavailable	U

Footnotes:

[1] The maximum effluent concentration and ambient background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[2] The maximum effluent concentration or ambient background concentration is "Unavailable" when there are no monitoring data for the constituent.

[3] RPA Results = Yes, if MEC ≥ WQC, B > WQC and MEC is detected, or Trigger 3
= No, if MEC and B are < WQC or all effluent data are undetected
= Unknown (U), if no criteria have been promulgated or data are insufficient.

[4] Basin Plan section 7.2.1.2 requires copper WQBELs.

[5] SIP section 1.3 excludes from its RPA procedure priority pollutants for which a TMDL has been developed. Basin Plan sections 7.2.2 and 7.2.3 contain mercury and PCBs TMDLs. The urban stormwater runoff wasteload allocations for those TMDLs implicitly include all current and future permitted discharges not otherwise addressed by another allocation and unpermitted discharges within the geographic boundaries of runoff management agencies. Because the Discharger discharges treated effluent to the City of Oakland storm drain, the discharge is covered under the Alameda County Clean Water Program wasteload allocation, which is implemented through NPDES Permit No. CAS612008, *Municipal Regional Stormwater NPDES Permit*. Provisions VI.C.4 through VI.C.6 of this Order further serve to implant these wasteload allocations.

[6] Basin Plan section 4.7.2.2 does not require cyanide WQBELs because the Discharger does not use cyanide in its industrial processes and does not disinfect its effluent.

c. Whole Effluent Acute Toxicity. Basin Plan section 3.3.18 states, "There shall be no acute toxicity in ambient waters" and requires effluent limitations for whole effluent acute toxicity. As such, it is presumed that there is reasonable potential for acute toxicity in the discharge to cause or contribute to exceedance of the toxicity water quality objective in the Oakland Inner Harbor.

d. Whole Effluent Chronic Toxicity. The discharge will be intermittent and temporally limited, occurring only during precipitation when EBMUD does not allow discharge to the sanitary sewer system. As such, discharge durations will be too short to result in chronic exposures, and thus there is no reasonable potential that the discharge could cause chronic toxicity in the Oakland Inner Harbor.

e. Sediment Quality. Pollutants in some receiving water sediments may be present in quantities that alone or in combination are toxic to benthic communities. Efforts are underway to identify stressors causing such conditions. However, to date there is no evidence directly linking compromised sediment conditions to the discharges subject to this Order; therefore, the Regional Water Board cannot draw a conclusion about reasonable potential for these discharges to cause or contribute to exceedances of the

sediment quality objectives. Nevertheless, pursuant to Monitoring and Reporting Program (MRP) section V, the Discharger will participate in the RMP, which monitors San Francisco Bay sediment and seeks to identify stressors responsible for degraded sediment quality. Thus far, the monitoring has provided only limited information about potential stressors and sediment transport. The Regional Water Board is exploring options for obtaining additional information that may inform future analyses.

4. Effluent Limitations

This Order does not contain water quality-based effluent limitations (WQBELs) for constituents that do not demonstrate any reasonable potential to exceed the water quality objectives; however, Provision VI.C.2 of the Order requires monitoring for such pollutants. If concentrations are found to have increased significantly, Provision VI.C.2 requires the Discharger to investigate the sources of the increases and implement remedial measures if the increases pose a threat to receiving water quality.

a. **Copper**. Basin Plan section 7.2.1.2 requires copper WQBELs for all wastewater discharges. The copper WQBELs are based on the procedures in SIP section 1.4. Average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) were calculated as shown in the table below:

Table F-6. WQBEL Calculations

Pollutant	**Copper**
Units	**µg/L**
Basis and Criteria type	Basin Plan Aquatic Life
Criteria -Acute	11
Criteria -Chronic	8.2
SSO Criteria -Acute	-----
SSO Criteria -Chronic	-----
Water Effects ratio (WER)	1
Lowest WQO	8.2
Site Specific Translator - MDEL	0.87
Site Specific Translator - AMEL	0.73
Dilution Factor (D) (if applicable)	0
No. of samples per month	4
Aquatic life criteria analysis required? (Y/N)	Y
HH criteria analysis required? (Y/N)	N
Applicable Acute WQO	12.4
Applicable Chronic WQO	11.2
HH criteria	
Background (Maximum Conc for Aquatic Life calc)	2.5
Background (Average Conc for Human Health calc)	-----
Is the pollutant on the 303d list (Y/N)?	N
ECA acute	12.4
ECA chronic	11.2
ECA HH	

Pollutant	Copper
Units	**µg/L**
Number of data points <10 or at least 80% of data reported non detect? (Y/N)	Y
Avg of effluent data points	
Std Dev of effluent data points	
CV calculated	N/A
CV (Selected) - Final	0.60
ECA acute mult99	0.32
ECA chronic mult99	0.53
LTA acute	4.0
LTA chronic	5.9
minimum of LTAs	4.0
AMEL mult95	1.6
MDEL mult99	3.1
AMEL (aq life)	6.2
MDEL(aq life)	12.4
MDEL/AMEL Multiplier	2.0
AMEL (human hlth)	
MDEL (human hlth)	
minimum of AMEL for Aq. life vs HH	6.2
minimum of MDEL for Aq. Life vs HH	12
Previous permit limit (AMEL)	-----
Previous permit limit (MDEL)	-----
Final limit - AMEL	6.2
Final limit - MDEL	12

Due to the intermittent nature of the discharge, this Order specifies that compliance with the average monthly effluent limit for copper is to be based on at least two monitoring results collected within the same calendar month. For months during which the Discharger cannot collect a second sample due to lack of additional discharge events, compliance is to be evaluated based only on the maximum daily effluent limit.

b. Whole Effluent Acute Toxicity. The acute toxicity effluent limit is based on Basin Plan Table 4-3. The test species specified in the MRP are rainbow trout and fathead minnow. If one species is consistently less sensitive to the discharge than the other, the Discharger may discontinue monitoring using the less sensitive species. The Executive Officer must first concur in writing that monitoring with only one species is appropriate.

D. Discharge Requirement Considerations

1. Anti-backsliding. CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) require effluent limitations in a reissued permit to be as stringent as those in the previous

permit. This is the first individual NPDES permit for the Facility (the *Waste Discharge Requirements for Discharges of Storm Water associates with Industrial Activities Excluding Construction Activities*, NPDES Permit No. CAS000001, State Water Board Order No. 97-03-DWQ, did not impose numeric limits); therefore, there is no backsliding.

2. **Antidegradation.** Antidegradation policies require that existing water quality be maintained unless degradation is justified based on specific findings. State Water Board Resolution No. 68-16 sets forth California's Antidegradation policy. Consistent with 40 C.F.R section 131.12, Resolution No. 68-16 incorporates the federal antidegradation policy. The Basin Plan implements, and incorporates by reference, the State and federal antidegradation policies. Permitted discharges must be consistent with these policies.

   In accordance with State Water Board Administrative Procedures Update No. 90-004, the potential for degradation is evaluated by comparing the receiving water quality likely to result from the new permit to the water quality baseline. The water quality baseline is the best receiving water quality that has existed since 1968 when considering Resolution No. 68-16 or since 1975 under the federal policy, unless subsequent lowering was due to regulatory action consistent with State and federal antidegradation policies. If poorer water quality was permitted, the most recent water quality resulting from permitted action is the baseline water quality. For purposes of this analysis, existing water quality is assumed to be the best that has existed since 1968 and 1975. No poorer water quality has been permitted. (Water quality in 1968 and 1975 was worse than it is now because most CWA controls, such as the secondary treatment standards for municipal wastewater treatment, were not yet in place.)

   This Order authorizes the discharges to the Oakland Inner Harbor. Based on best professional judgment and pertinent available information, the discharge will not be adverse to the intent and purpose of the antidegradation policies. For the following reasons, these discharges will not degrade existing Oakland Inner Harbor water quality:

   i. Discharges from the Facility were previously regulated pursuant to NPDES Permit No. CAS000001. Authorized discharges occur intermittently and are temporally limited. They only occur during precipitation when the Discharger cannot discharge to the sanitary sewer.

   ii. The discharge is small relative to other wet weather discharges in the area, such as those from the storm drain system into which Facility effluent flows prior to discharge, and relative to the Oakland Inner Harbor and San Francisco Bay. The treatment system design capacity is only 600 gallons per minute. The storm drain can discharge up to 27,000 gallons per minute.

   iii. The intermittent and short-term discharges to the Oakland Inner Harbor will be dispersed throughout San Francisco Bay by currents and tides and will not result in observable water quality differences, particularly after each short-term discharge ceases.

   Based on these findings, a more comprehensive antidegradation analysis is not required.

3. **Stringency of Requirements for Individual Pollutants.** This Order contains technology-based effluent limitations for certain pollutant parameters and implements minimum, applicable federal technology-based requirements. Except for copper, this Order does not

contain WQBELs for individual pollutants because no individual pollutant exhibits reasonable potential to cause or contribute to exceedances of water quality objectives.

This Order's effluent limitations have been established to protect beneficial uses of the receiving water. The beneficial uses and associated water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. U.S. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the Clean Water Act" pursuant to 40 C.F.R. section 131.21(c)(1). U.S. EPA approved the remaining beneficial uses and water quality objectives so they are applicable water quality standards pursuant to 40 C.F.R. section 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limitations in sections V.A and V.B of the Order are based on Basin Plan narrative and numeric water quality objectives. The receiving water limitation in section V.C of the Order requires compliance with federal and State water quality standards.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 C.F.R. section 122.41 and additional conditions applicable to specific categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with these provisions. The conditions set forth in 40 C.F.R. sections 122.41(a)(1) and (b) through (n) apply to all state-issued NPDES permits and must be incorporated into the permits either expressly or by reference.

In accordance with 40 C.F.R. section 123.25(a)(12), states may omit or modify conditions to impose more stringent requirements. Attachment G contains standard provisions that supplement the federal standard provisions in Attachment D.

This Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the State's enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates Water Code section 13387(e) by reference.

B. Monitoring and Reporting

CWA section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.44(i), and 122.48 require that NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP (Attachment E) of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. For more background regarding these requirements, see Fact Sheet section VII.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 C.F.R. sections 122.62 and 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new and relevant information that may become available in the future and other circumstances as allowed by law.

2. Effluent Characterization Study and Report

This Order does not include effluent limitations for priority pollutants that do not demonstrate reasonable potential, but this provision requires the Discharger to monitor for these pollutants as described in the MRP and Attachment G. Monitoring data are necessary to verify that the "no" and "unknown" reasonable potential analysis conclusions of this Order remain valid. This requirement is authorized pursuant to Water Code section 13267 and is necessary to inform the next permit reissuance.

3. Pollutant Minimization Program

This provision is based on SIP section 2.4.5.

4. Treatment System Optimization

This provision requires the Discharger to identify critical process control parameters and to optimize pollutant removal by July 1, 2017. This requirement is necessary to justify the equivalent protection exception from Basin Plan Prohibition 1. Furthermore, it ensures that the treatment system is operated in a manner reflective of BAT and BCT (i.e., best industry practice considering technological availability and economic practicability and achievability). The treated effluent resulting from the study must be discharged to the sanitary sewer because it may contain chlorine from the potable water used to simulate the influent wastewater to be treated.

5. Storage and Treatment Standard Operation and Maintenance Procedures

This provision requires the Discharger to develop standard procedures to ensure that the Facility personnel operate and maintain the treatment system appropriately and consistently. This requirement is necessary to justify the equivalent protection exception from Basin Plan Prohibition 1.

6. Water Pollution Prevention Plan

The requirements of this provision serve as narrative effluent limitations and facilitate compliance with Discharge Prohibition III.E of this Order. In conjunction with the numeric effluent limitations listed in Table 4 of the Order, they constitute technology-based pollutant discharge controls based on best professional judgment (see Fact Sheet section IV.B). These requirements reflect best industry practice considering technological availability and economic practicability and achievability.

The WPPP, including the Best Management Practices (BMPs) requirements, closely follow the corresponding requirements of NPDES Permit No. CAS000001 (State Water Board Order No. 2014-0057-DWQ, *General Permit for Storm Water Discharges Associated with Industrial Activities*), which, in turn, closely follows U.S. EPA's *Multi-Sector General NPDES Permit for Stormwater Discharges Associated with Industrial Activity.* However, the requirements in this Order more specifically address the nature of the Facility and the potential for pollutants associated with its scrap metal processing operations to directly or indirectly reach waters of the United States (e.g., through vehicle tracking, wind transport, or ship loading or unloading).

Prior to submitting the WPPP, this provision requires the Discharger to continue complying with provisions X and XI.A of NPDES Permit No. CAS000001. The Discharger has filed a Notice of Intent and received an Authorization to Discharge pursuant to that general permit. With adoption of this Order, coverage under that permit is no longer necessary. After submitting the WPPP, continued compliance with provisions X and XI.A of NPDES Permit No. CAS000001 will also be unnecessary.

7. Onsite Storage Capacity

This provision requires the Discharger to maintain the capacity to store stormwater and wastewater within the 1.2 million-gallon storage tank and determine the volume of onsite storage necessary to achieve WPPP objectives in a manner that reflects BAT and BCT (i.e., best industry practice considering technological availability and economic practicability and achievability). This provision requires the Discharger to implement storage improvements if necessary to reflect BAT and BCT.

8. Wooden Pier Conveyor System Containment

This provision requires containment of spilled product, dust, dirt, rubbish, refuse, and debris at the wooden pier. It also requires that stormwater and process wastewater be collected and transferred upland via the stormwater conveyance system. It reflects BAT and BCT, and reduces or prevents discharges in a manner that reflects best industry practice considering technological availability and economic practicability and achievability. This standard is already achieved at the concrete pier dock.

9. Structural Improvements

This provision requires the Discharger to implement structural improvements at the Facility. It reflects BAT and BCT and reduces or prevents discharges in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

VII. MONITORING AND REPORTING PROGRAM (MRP)

Attachment E contains the MRP for this Order. It specifies sampling stations, pollutants to be monitored (including all parameters for which effluent limitations are specified), monitoring frequencies, and reporting requirements. The following provides the rationale for the MRP requirements:

A. MRP Requirements Rationale

1. **Effluent Monitoring.** Effluent flow monitoring is necessary to evaluate compliance with Discharge Prohibition III.C and to understand Facility operations. Other effluent monitoring is necessary to evaluate compliance with this Order's effluent limitations and to support future reasonable potential analyses and possible development of WQBELs during the next permit reissuance.

   Additional monitoring is necessary to evaluate treatment system performance and support possible development of technology-based effluent limits during the next permit reissuance. Turbidity monitoring assesses colloidal matter removal. Total organic carbon monitoring assesses organic pollutant removal. Monitoring of certain metals assesses metals removal. The metals to be monitored include aluminum, iron, copper, lead, and zinc. These metals are associated with the scrap metal recycling industry (*Multi-sector General Permit for Stormwater Discharges Associated with Industrial Activity*, U.S. EPA, May 27, 2009).

2. **Receiving Water Monitoring.** The Discharger is required to participate in the RMP, which involves collecting data on pollutants and toxicity in San Francisco Bay water, sediment, and biota. This monitoring is necessary to characterize the receiving water and the effects of the discharge this Order authorizes.

B. Monitoring Requirements Summary

The table below summarizes routine monitoring requirements. This table is for informational purposes only. The actual requirements are specified in the MRP and elsewhere in this Order.

Table F-7. Monitoring Requirements Summary

Parameter	Effluent	Receiving Water	Site
Flow	Continuous	---	---
Turbidity	1/Day	---	---
pH	1/Day	Support RMP	---
Total Suspended Solids	1/Event and at least 2/Year	---	---
Total Organic Carbon	1/Event and at least 2/Year	---	---
Oil and Grease	1/Event and at least 2/Year	---	---
Aluminum	1/Event and at least 2/Year	Support RMP	---
Iron	1/Event and at least 2/Year	Support RMP	---
Copper	1/Event and at least 2/Year	Support RMP	---
Lead	1/Event and at least 2/Year	Support RMP	---
Zinc	1/Event and at least 2/Year	Support RMP	---
Acute Toxicity	1/Year	--	---
Other Priority Pollutants	Once	Support RMP	---
Visual Observations	---	---	1/Month

VIII. PUBLIC PARTICIPATION

The Regional Water Board considered the issuance of this Order that will serve as an NPDES permit for the Facility. As a step in the order adoption process, Regional Water Board staff developed a tentative order and encouraged public participation in the order adoption process.

A. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the *Oakland Tribune.* The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay.

B. Written Comments. Interested persons were invited to submit written comments concerning the tentative WDRs as explained through the notification process. Comments were due either in person or by mail at the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California 94612, to the attention of Jessica Watkins.

For full staff response and Regional Water Board consideration, the written comments were due at the Regional Water Board office by **5:00 p.m. on September 19, 2016.**

C. Public Hearing. The Regional Water Board held a public hearing on the tentative WDRs during its regular meeting at the following date and time and at the following location:

Date: Wednesday, November 9, 2016
Time: 9:00 a.m.
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Jessica Watkins, (510) 622-2349, jessica.watkins@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested to be in writing.

Dates and venues change. The Regional Water Board web address is http://www.waterboards.ca.gov/sanfranciscobay, where one could access the current agenda for changes in dates and locations.

D. Reconsideration of Waste Discharge Requirements. Any aggrieved person may petition the State Water Board to review the Regional Water Board's decision regarding the final WDRs. The State Water Board must receive the petition at the following address within 30 calendar days of the Regional Water Board action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml.

E. Information and Copying. The Report of Waste Discharge, related supporting documents, and comments received are on file and may be inspected at the address above at any time between

8:00 a.m. and 5:00 p.m. (except noon to 1:00 p.m.), Monday through Friday. Copying of documents may be arranged by calling (510) 622-2300.

F. Register of Interested Persons. Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference the Facility, and provide a name, address, and phone number.

G. Additional Information. Requests for additional information or questions regarding this Order should be directed to Jessica Watkins, (510) 622-2349, jessica.watkins@waterboards.ca.gov.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

March 2010

Contents

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. Contingency Plan - The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. Spill Prevention Plan - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;

b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. Operation and Maintenance (O&M) Manual - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. Wastewater Facilities Status Report - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) - POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Stormwater – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all stormwater flows from the facility to the wastewater treatment plant headworks.

1. Stormwater Pollution Prevention Plan (SWPP Plan)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of stormwater discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in stormwater discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to stormwater discharges, or may result in non-stormwater discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's stormwater discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

   1) Stormwater conveyance, drainage, and discharge structures;

   2) An outline of the stormwater drainage areas for each stormwater discharge point;

   3) Paved areas and buildings;

   4) Areas of actual or potential pollutant contact with stormwater or release to stormwater, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

   5) Location of existing stormwater structural control measures (i.e., berms, coverings, etc.);

   6) Surface water locations, including springs and wetlands; and

   7) Vehicle service areas.

c. A narrative description of the following:

   1) Wastewater treatment process activity areas;

   2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with stormwater discharges;

   3) Material storage, loading, unloading, and access areas;

   4) Existing structural and non-structural control measures (if any) to reduce pollutants in stormwater discharges; and

   5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in stormwater discharges in significant quantities.

3. Stormwater Management Controls

The SWPP Plan shall describe the stormwater management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of stormwater management controls to be implemented shall include, as appropriate:

a. Stormwater pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge stormwater. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter stormwater conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Stormwater management practices

Stormwater management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to stormwater discharges in significant quantities, additional stormwater management practices to remove pollutants from stormwater discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the stormwater drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering stormwater discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in Table C for compliance determination, or any other method described in 40 CFR part 136 or approved by U.S. EPA (such as the 1600 series) if authorized by the Regional Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

1) The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

2) The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

3) The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

4) Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does

not comply with permit limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

i. The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

ii. The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

1) If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter is in compliance with the monthly average limit.

2) If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

3) If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self monitoring report (SMR).

4) The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

5) When a bypass occurs (except one subject to provision III.A.3.b.6 below), the Discharger shall monitor flows and collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass (including acute toxicity using static renewals), except chronic toxicity, unless otherwise stipulated by the MRP.

6) Unless otherwise stipulated by the MRP, when a bypass approved pursuant to Attachment D, Standard Provisions, Sections I.G.2 or I.G.4, occurs, the Discharger shall monitor flows and, using appropriate procedures as specified in the MRP, collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze for total suspended solids (TSS) using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limits using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze the retained samples for that discharge for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger

shall analyze the retained samples for one approved bypass discharge event for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

c. Stormwater Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for stormwater discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with stormwater) is directed to the headworks. For stormwater not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

1) Conduct visual observations of the stormwater discharge locations during daylight hours at least once per month during a storm event that produces significant stormwater discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

2) Measure (or estimate) the total volume of stormwater discharge, collect grab samples of stormwater discharge from at least two storm events that produce significant stormwater discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

   The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

3) Testing for the presence of non-stormwater discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all stormwater discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

4) Samples shall be collected from all locations where stormwater is discharged. Samples shall represent the quality and quantity of stormwater discharged from the facility. If a facility discharges stormwater at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that stormwater discharges from different locations are substantially identical.

5) Records of all stormwater monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

1) Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

2) Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

3) Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

- Land Application: Arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc
- Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)
- Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (Attachment D)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of U.S. EPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. Treatment Facility Overflows

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

1) Identification of all violations of effluent limits or other waste discharge requirements found during the reporting period;

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports invalidation [e.g., laboratory sheet, log entry, test results, etc.], and discussion of the

corrective actions taken or planned [with a time schedule for completion] to prevent recurrence of the sampling or measurement problem.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (ML) to zero. The Discharger shall calculate and report dioxin-TEQs using the following formula, where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \times TEF_x \times BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener x
BEFx = bioaccumulation equivalency factor for congener *x*

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	1998 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0001	0.02

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) *Reporting Method*: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until U.S. EPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	California Emergency Management Agency (Cal EMA)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from Cal EMA)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISION – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

Cd = Average daily concentration = $\frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$

In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Stormwater means stormwater runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
	Chromium (total)[7]	SM 3500					50	2	10	0.5	1			1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[8]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[9]	0100.2 [10]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										

[5] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another U.S. EPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[6] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[7] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest chromium (VI) criterion (11 ug/l).

[8] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[9] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[10] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
24.	Chloroethane	601	0.5	2										
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[11]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											

[11] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

ATTACHMENT 30

MEMBER AGENCIES:

Alameda

Alameda County

Alameda County Flood Control and Water Conservation District

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

Zone 7 of the Alameda County Flood Control District

STORMWATER QUALITY MANAGEMENT PLAN

July 2001 – June 2008

Alameda Countywide Clean Water Program

A Consortium of Local Agencies

TABLE OF CONTENTS

ACRONYMS

ACCWP	Alameda Countywide Clean Water Program
BASMAA	Bay Area Stormwater Management Agencies Association
BMPs	Best Management Practices
CDPR	California Department of Pesticide Regulation
CWA	Clean Water Act
DTSC	Department of Toxic Substances Control
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FY	Fiscal Year
GBP	Green Business Program
GIS	Geographic Information Systems
HHW	Household Hazardous Waste
I&IDC	Industrial and Illicit Discharge Control
II&ID	Illicit Discharge Controls and Industrial/Commercial Discharge Controls
IPM	Integrated Pest Management
MOA	Memorandum of Understanding
NAS	National Academy of Sciences
NPDES	National Pollutant Discharge Elimination System
P^2	Pollution Prevention
PCBs	Polychlorinated biphenyls
PCOs	Pest Control Operators
PI/P	Public Information and Participation
PRPs	Pollutant Reduction Plans
RMAS	Regional Monitoring and Assessment Strategy
RMP	Regional Monitoring Program for Trace Substances
SUSMPs	Standard Urban Stormwater Mitigation Plans
SWMM	Storm Water Management Model
TIEs	Toxicity Identification Evaluations
TMDL	Total Maximum Daily Load
U.S. EPA	United States Environmental Protection Agency
WAMS	Watershed Assessment and Monitoring Subcommittee

DEFINITIONS

Act	Porter-Cologne Water Quality Control Act
BMPs	Best Management Practices – Practices Implemented by private industry and public agencies which prevent or reduce water pollution.
District	Alameda County Flood Control and Water Conservation District
Plan	Stormwater Quality Management Plan
Program	Alameda County Clean Water Program
Regional Board	California Regional Water Quality Control Board, San Francisco Bay Region
Stakeholders	People that live and work in a watershed
State Board	State Water Resources Control Board

SECTION 1 INTRODUCTION AND BACKGROUND

INTRODUCTION

The Alameda Countywide Clean Water Program (Program) is a consortium of agencies within Alameda County that discharge stormwater to the San Francisco Bay. This Stormwater Quality Management Plan (Plan) describes the Program's approach to reducing stormwater pollution.

There are five major sections to the Plan. The Background provides a brief history of water quality regulations. The Program Description describes the structure, accomplishments, and recent developments of the Program. The Component Work Plans describe the objectives and tasks of each Program component. The Pollution Reduction Plans describe the actions the Program and the member agencies will take to address specific pollutants that are impairing water quality. Lastly, the Performance Standards list specific tasks that the member agencies are required to perform.

The Plan for FY 2001/02 through 2007/08 is the Program's third stormwater quality management plan and will serve as the basis of the Program's third stormwater discharge permit from the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Board). The Plan was submitted to the Regional Board 180 days prior to the expiration of the Program's second permit on February 19, 2002. The federal Clean Water Act (1972) requires stormwater dischargers to reduce pollutants to the maximum extent practicable. The Plan, in conjunction with the permit adopted by the Regional Board, is designed to enable the consortium to meet that requirement.

BACKGROUND

HISTORY OF THE CLEAN WATER ACT

By the late 1960s, urbanization and industrialization had taken a toll on the nation's waters: many rivers and bays were visibly polluted. In response to growing public concern over water pollution, Congress passed the Clean Water Act (1972). The goals of the Clean Water Act are to restore the biological, physical, and chemical integrity of our nation's waters and to make all of our waters fishable and swimable.

Section 402 of the Clean Water Act (CWA) established the National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES permit program set nationwide permitting requirements for discharging pollutants into waterways. The limits varied by category of industry and were based on a level of treatment that was achievable using the best available technology. The 1987 amendments to the CWA required that municipal stormwater discharges obtain NPDES permit coverage. These amendments required municipalities to effectively prohibit non-stormwater discharges to their storm drain systems and to implement controls to reduce pollutants in stormwater to the maximum extent practicable.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

In California, the State Water Resources Control Board (State Board) along with the nine Regional Boards has primary responsibility for regulating water quality. The State Board has overall responsibility for water quality regulation under division 7 of the Porter-Cologne Water Quality Control Act (Act). This Act also divides the state into nine hydrological basins, for local administration of the Act by the semiautonomous Regional Boards with coordination and oversight from the State Board. The Regional Boards have authority to regulate point source discharges, such as municipal stormwater discharges, through the adoption of waste discharge requirements under chapter 5.5 of the Act. In addition, the responsibility for implementing the NPDES permit program has been delegated to the State Board and its local Region Boards.

RECENT DEVELOPMENTS

The implementation of the CWA has been very effective in cleaning up our nation's waters. The reduction of pollution has been particularly dramatic for industrial and sanitary treatment plant discharges. For example, the amount of metals being discharged from these sources decreased by about 60 percent between 1986 and 1999 (T. Wu, personal communication, February 2001). However, many of our nation's waters still do not meet the goals set forth in the CWA. Two approaches to address this problem are being implemented, namely, the total maximum daily load (TMDL) program, and the watershed management approach.

TMDL Program

A TMDL is an estimate of the maximum quantity of a pollutant that could be discharged to a body of water while still ensuring the attainment of water quality standards. The TMDL program was established by Section 303 of the CWA. Congress correctly presumed that even after the implementation of technology based controls, some water bodies would not meet water quality standards. For each water body that does not meet applicable standards (referred to as "impaired"), a TMDL must be established. After the TMDL is established, additional requirements are placed on sources of the pollutant so that the total quantity of the pollutant discharged to the water body from all sources is no greater than the established TMDL.

In response to lawsuits, the U.S. Environmental Protection Agency (U. S. EPA) has recently initiated an intensive effort to develop TMDLs for all impaired waters. In the San Francisco Bay region, TMDLs are scheduled to be developed for mercury, PCBs, chlorinated pesticides, diazinon, sediment, and several other pollutants.

Watershed Management Approach

A watershed is the area of land that drains to a specific body of water. USEPA defines the watershed management approach as having the following components: problem identification, stakeholder involvement, and integrated actions. The watershed management approach is similar to the TMDL approach in that both address

water quality problems in a comprehensive manner. The difference between the two is that the TMDL approach is primarily a command and control approach, whereas the watershed management approach focuses on developing cooperative solutions. Under the watershed management approach, people that live and work in a watershed (stakeholders) develop a consensus regarding the best solutions to watershed problems. The watershed management approach can also encompass issues such as flood control, habitat restoration, and water supply, which are not specifically regulated by the CWA. This Plan describes the Program's involvement in both the TMDL program and the watershed management approach.

SUSMPs

SUSMPs (Standard Urban Stormwater Mitigation Plans) represent a new initiative by the State Board and Regional Boards to control the detrimental effects on water quality caused by new development and redevelopment. The Los Angeles Regional Water Quality Control Board initiated the use of SUSMPs, and under appeal to the State Board, its use was upheld in October 2000 as the statewide standard for what constitutes maximum extent practicable stormwater controls. In the Bay area SUSMPs will need to be tailored to fit local hydrologic and development conditions.

The Alameda Countywide Clean Water Program has long implemented the portion of the SUSMPs requiring the use of BMPs. One of the new parts is the requirement specifying that about 85 percent of the volume of runoff typical of an average wet season must be treated. Another new part will be the requirement to minimize the rate of runoff that flows from a project site in order to prevent increased erosion of creek channels.

It is expected that SUSMPs will be increasingly used to impose requirements on new development and redevelopment that will be more specific and numeric.

SECTION 2 PROGRAM DESCRIPTION

MISSION, VISION, AND STRATEGIC OBJECTIVES

Mission

The mission of the Alameda Countywide Clean Water Program is to help local residents, businesses and municipalities meet the stormwater quality goals of the Clean Water Act.

Vision

We, the member agencies, see the Alameda Countywide Clean Water Program as an innovative, nationally recognized leader in efficient and effective stormwater management, protecting and preserving our natural water resources and the San Francisco Bay.

Strategic Objectives: To accomplish its mission and vision, the Program has developed the following strategic objectives:

- Continue our self-directed, proactive approach fostering trust and respect from regulators and business and environmental groups;
- Produce tangible water quality improvements through expanded collaborations with other organizations;
- Communicate a clear vision of the Program's goals and objectives to the public, and to member agencies' staff, management, and elected officials; and,
- Improve communication links and working relationships among departments within member agencies and between the Program and Regional Board staff.

PROGRAM STRUCTURE

The following agencies are members of the Program: the cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City; the County of Alameda; the Alameda County Flood Control and Water Conservation District (District); and Zone 7 of the District. The Program was established in 1991 through a Memorandum of Agreement (MOA). The MOA established a General Program and individual programs. The General Program carries out activities in common on behalf of the member agencies. The individual programs are implemented by each member agency. A copy of the MOA is included in Appendix A.

As part of its individual program, each of the member agencies is responsible for complying with the NPDES permit requirements for discharges from its municipally owned storm drain system. The NPDES permit finds that enforcement actions will, wherever possible, be pursued only against the individual agency responsible for the violation. As an area wide activity, the General Program will inform any of the member agencies about potential significant permit compliance problems that it becomes aware of and will offer suggested solutions.

There are eight components to the Program: Planning and Regulatory

Compliance, Watershed Assessment, Monitoring and Special Studies, Public Information and Participation, Municipal Maintenance Activities, New Development and Construction Controls, Illicit Discharge Controls, and Industrial/Commercial Discharge Controls. Component objectives and tasks are described in Section 4. Individual Program activities are described in the Performance Standards (Section 5). Each component is coordinated through a subcommittee that is composed of representatives of the member agencies. All subcommittees report to the Management Committee which is the official decision making body for the Program.

General Program activities are funded by the member agencies through contributions proportional to their area and population. The General Program budget for fiscal year 2001-2002 is $2.1 million. A copy of the General Program component tasks and budgets for fiscal year 2001-2002 is included in Appendix B.

PROGRAM ACHIEVEMENTS

The Program has enjoyed significant achievements, such as, increasing public awareness, developing a model inspection program, initiating a watershed approach, and identifying diazinon as a significant stormwater toxicant. A few of the Program's achievements are described below; other achievements are described in the component work plans.

Public Awareness

A major focus of the Program's effort has been to raise the public's awareness of stormwater pollution and the public's role in preventing it. To accomplish that goal the Program initiated numerous activities; including, (1) participated in the Bay Area Stormwater Management Agencies Association's regional television advertising campaign "When Ants Invade," which promoted the use of less toxic pest control practices and won a national advertising industry award; (2) sponsored the development of innovative outreach programs such as *Bay Savers* and *Kids in Creeks,* which encourage watershed awareness and pollution prevention among elementary school students; (3) distributed over 100,000 educational brochures, fact sheets and promotional items; (4) stenciled over 10,000 drop inlets with the "No Dumping Drains to Bay" message; (5) provided over fifty community stewardship grants to local teachers and student groups, environmental groups, service clubs, homeowner associations, and other clean water partners; and (6) implemented two major point of purchase campaigns to educate consumers about less toxic alternatives to pesticides. These efforts have been very successful: in a recent survey of Alameda County residents, 45% of respondents mentioned stormwater runoff as a major cause of water pollution and 74%, believed that their behavior could affect water quality.[1]

Model Industrial/Commercial Stormwater Inspection Program

In 1993 the Program's municipalities started to conduct stormwater inspections combined with educational outreach to businesses. Since then, more than 10,000 inspections have been

conducted. Based on an evaluation of approximately 1,200 businesses inspected two or more times, the accomplishments of this inspection and educational effort include the following: 1) The number of non-stormwater discharges decreased by about one-fourth; 2) a decline of almost one-half occurred in the number of businesses judged to have a high potential to discharge pollutants to stormwater; and 3) an increase was observed in the use of Best Management Practices. In some ways the program has served as a model as judged by the use of Program's municipal inspection staff in 2000 to help train staff from the Regional Boards; the Program's receipt of a state grant in 1996 to develop a statewide inspection handbook; and the use of several of the inspection program's ideas by other municipal stormwater programs in the Bay area.

Watershed Approach

During the past five years the Program has worked closely with its member agencies and local organizations to begin building successful collaborations in local watersheds. The Program has funded the development of watershed maps, which have been very useful to community groups, and has developed a countywide geographic information system (GIS) that includes data on topography, soil type, impervious surfaces, creeks, storm drains, sanitary sewer lines, water quality, fisheries, and habitat quality. In addition, the Program's member agencies have provided funding to support the development of creek groups and have been participating in numerous ongoing watershed efforts, including, Sausal Creek, Alameda Creek, Laguna Creek, San Leandro Creek, San Lorenzo Creek, and Lake Merritt. This has resulted in improved stewardship for these creeks and thousands of volunteer hours dedicated to advocacy, clean up, educational outreach, restoration and other improvements to water quality.

Diazinon

When the Program conducted its stormwater pollutant characterization effort (1990 through 1992), it was not anticipated that current generation pesticides would cause impairment of local creeks. However, through the use of toxicity tests and toxicity identification evaluations, the Program found that diazinon, a widely used insecticide, was a significant cause of stormwater toxicity.[2] That finding led to the eventual listing of local creeks as being impaired due to diazinon. After determining that diazinon was a prevalent toxicant, the Program conducted several studies to determine the sources of diazinon in stormwater. One of these studies found that the application of diazinon in accordance with label directions may be responsible for much of the diazinon found in stormwater.[3] The results of that study were cited in U. S. EPA's recent assessment of diazinon that resulted in a national ban on the sale of diazinon for urban use after 2004.[4]

EVOLUTION OF THE PROGRAM

A great deal has been accomplished over the past ten years. However, as the Program moves into its third permit, it faces significant challenges. In particular, the listings of the bay and creeks as impaired by specific pollutants will require increased efforts to reduce the discharges of these pollutants in

stormwater prior to and as part of TMDLs. The increased focus on other stormwater impacts to local creeks will also require additional effort.

Response to Impairment

The Regional Board conducts periodic reviews of data on water bodies in the region to determine if any pollutant is causing an impairment. As a result of the Regional Board's 1998 review of existing data, the State Board and U. S. EPA listed San Francisco Bay as impaired due to several pollutants, including, mercury, polychlorinated biphenyls (PCBs), diazinon, chlorinated insecticides, and copper. Several creeks in Alameda County are also listed as impaired due to diazinon.

There are often multiple sources of these pollutants, for example, sources may include industrial and sanitary discharges, air emissions and deposition, historic deposits, or stormwater discharges. To address the contribution of these pollutants coming from Alameda County's stormwater discharge, the Program has developed Pollutant Reduction Plans (see Section 4). These Pollutant Reduction Plans provide a description of the problem the pollutants are causing, the known or suspected sources of the pollutant, and the Program's approach to minimizing its discharge of the pollutant. Also included is a list of tasks the Program will complete during the next two years (i.e., FY 2001/02 and 2002/03). These work plans are based on our current understanding of the sources and the appropriate next steps. Beginning in 2002, proposed tasks for future years will be submitted to the Board along with the Program's Annual Report.

Local Watershed Efforts

The previous stormwater management plan recognized that the Program should investigate the watershed management approach as an alternative method for solving local environmental problems. In contrast to the traditional command and control regulatory approach, the watershed approach is characterized by collaborative planning among the various stakeholders in a watershed. The solutions derived from this approach typically take longer to develop, but are more tailored to the unique problems and characteristics of individual watersheds. During the past five years the Program has worked closely with its member agencies and other local organizations to begin building successful collaborations in local watersheds. As expected, each watershed has a unique combination of environmental problems, existing organizations, and restoration opportunities, requiring a patient and flexible approach to developing solutions.

This Plan commits the Program to continuing and expanding the use of the watershed management approach. In addition to the extensive effort that will be conducted under the Watershed Assessment component, the Program will conduct the following activities: (1) provide support to watershed stewardship efforts (Public Information and Participation: Task 3); (2) incorporate results of watershed resource inventories into General Plan amendments (New Development: Performance Standard VII); and, (3) provide Program-wide coordination of watershed activities (Planning and Regulatory Compliance: Task 4). The Program and its member agencies will

also continue to work with key stakeholders in local watersheds to determine how the management of stormwater quality can contribute to local creek protection and improvement efforts. To guide the implementation of the watershed approach, the Program will develop a watershed framework The framework will lay out specific goals and a process for the Program's and its member agencies' participation in watershed management efforts.

Increased Planning and Evaluation

Work plans and performance standards are divided into components. As in the past, the implementation of each component will be guided by a subcommittee. This structure has been very effective at allowing the Program to focus on specific areas of activity. However, there remains a need for greater planning and coordination across components. The Program has taken a number of steps to address this need. First, to provide a Program-wide focus to our efforts, the Program has developed mission and vision statements as well as strategic objectives. Second, the Plan includes a task to establish and maintain a work group to provide Program-wide planning and coordination (Planning and Regulatory Compliance: Task 6). The work group will meet on a regular basis and be attended by representatives of the various subcommittees. The development and implementation of Pollutant Reduction Plans will also promote coordination across components.

Another ongoing challenge for the Program, as well as for other stormwater management programs, is evaluating the effectiveness of its stormwater management practices. Due to the tremendous variability in stormwater flow and the ubiquitous nature of stormwater pollutants, it is extremely difficult to detect reductions in pollutant concentrations. Therefore, alternative evaluation methods need to be developed and employed. To address this, the Program has begun to develop methods of assessment for each major task in the component work plans. The Program will continue to develop and implement these methods of assessment over the course of the permit. The Program will also conduct periodic Program-wide evaluations of effectiveness (Planning and Regulatory Compliance: Task 6).

Notes

[1] *Results of the 1999 Public Attitude and Awareness Survey Regarding Storm Water Pollution. 1999, Jenkinson Associates: Sacramento, CA.*

[2] Hansen, S.R., *Identity and Control of Toxicity in Storm Water Discharges to Urban Creeks*. 1995, S.R. Hansen and Associates: Concord, CA.

[3] Scanlin, J. and Feng, A, *Characterization of the Presence and Sources of Diazinon in the Castro Valley Creek Watershed*. 1997, Alameda Countywide Clean Water Program: Hayward, CA.

[4] USEPA Memorandum, *Water Resources Assessment for Diazinon*. May 10, 1999, Office of Prevention, Pesticides and Toxic Substances, U.S. Environmental Protection Agency: Washington, D.C.

SECTION 3 COMPONENT OBJECTIVE AND TASKS

PLANNING AND REGULATORY COMPLIANCE

Introduction

This component encompasses the major planning, regulatory compliance, watershed management, and administrative activities of the Program. The Policy Level Subcommittee oversees this component's activities.

Component Objectives

1. Promote the implementation of effective and reasonable stormwater regulations by participating in regulatory processes. This may include advocating legislation that benefits member agencies.
2. Promote permit compliance by assisting member agencies with reporting and related activities.
3. Improve Program effectiveness by partnering with outside organizations.
4. Protect and improve the physical, chemical and biological integrity of waters in Alameda County through the development of watershed partnerships and the coordination of watershed management efforts.
5. Develop and implement measures to effectively reduce pollutants causing or threatening to cause impairment.
6. Promote Program coordination through Program-wide planning and evaluation.
7. Provide essential management and legal services.

Major Tasks

1. **Participate in the Regulatory Process:**

   - Review and comment on draft legislation and proposed regulations affecting stormwater
   - Confer with the Regional Board and other stakeholders during reissuance or amendment of permit
   - Participate in TMDL development and implementation process
   - Coordinate with other storm water programs through the Bay Area Stormwater Management Agencies Association and the California Stormwater Quality Task Force

   Task Evaluation: The evaluation of this task may include: 1) a review of the Program's participation in the regulatory process; and 2) an evaluation of the effectiveness of that participation.

2. **Assist Members with Permit Compliance:** A fundamental objective of the Program is to ensure that the member agencies comply with the requirements of their permit. The objective of this task is to assist member agencies with the reporting requirements and ensure that reports are submitted on schedule.

- Develop deliverable report forms
- Compile and submit completed deliverable reports to the Regional Board by required dates
- Review member agencies' performance
- Provide additional assistance with permit compliance as requested by member agencies, such as by providing orientation to new staff

Task Evaluation: The evaluation of this task may include: 1) a review of the completeness, and timeliness of report submittals; 2) a review of what the Regional Board staff needs included in the reporting; and 3) an assessment of any impediments to reporting as part reviewing the effectiveness of reporting formats and processes.

3. **Develop Partnerships:** Many public and private organizations have objectives that overlap with the Program's objectives, examples include, Alameda County Household Hazardous Waste Program, Green Business Program, and the Alameda County Waste Management Authority. By working together with these groups and others, the Program will be able to improve its cost-effectiveness. The Program has already begun to build working relationships with these groups and others. The purpose of this task is to expand upon those partnerships and to pursue opportunities to create additional partnerships.

   - Identify and prioritize issues where partnerships could significantly improve effectiveness
   - Seek to develop or enhance partnerships with public and private organizations that have similar interests

   Task Evaluation: The evaluation of this task may include: 1) enumeration of new or expanded partnerships, or 2) assessment of the benefits of those partnerships.

4. **Facilitate Watershed Approach:** The Program is engaged in promoting a watershed approach through activities within several components: the Watershed Assessment component provides technical assistance such as habitat assessments and watershed mapping; the Public Information and Participation component sponsors projects that increase watershed awareness; and, the New Development and Construction Site Controls component's performance standards incorporate results of watershed resource inventories into General Plan amendments. In addition, throughout the county member agencies are participating in numerous watershed efforts. The purpose of this task is to coordinate and assist with these activities.

   - Assess roles for and develop relationships with potential watershed partners: Regional organization such as the East Bay Municipal Utility District, Alameda County Water District, East Bay Regional Park District, and the Urban Creeks Council are potential partners in several county watersheds.
   - Establish a work group to promote information exchange

and coordination among watershed efforts
- Update Watershed Framework Document and implement as appropriate

Task Evaluation: The evaluation of this task may include: 1) the number of new or expanded partnerships, and 2) a survey of agency staff regarding the usefulness of the coordination effort.

5. **Support Pollutant Reduction Plans:** The Program has developed measures to address specific pollutants that are believed to be causing impairment to local water bodies. Planning activities related to the implementation and evaluation of those Plans will be conducted under this task.

   - Implement aspects of the Pollutant Reduction Plans that fall within this component
   - Coordinate implementing and updating the Pollutant Reduction Plans

   Task Evaluation: Evaluation may include: 1) assessment of the level of implementation; and 2) qualitative assessment of effectiveness.

6. **Plan and Evaluate:** Planning and evaluation are essential if the Program is to be effective. This task provides for establishing a work group to coordinate planning and evaluation across all components.

   - Evaluate Program performance and coordinate development of Program-wide annual work plans
   - Develop and maintain newsletter and website

   Task Evaluation: The evaluation for this task may include an assessment of the Program's planning and evaluation process.

7. **Provide Management Services:** The objective of this task is to provide essential administrative services to the member agencies.

   - Provide Program management, contracting, accounting, and other administrative services, and produce reports on Program activities, expenditures, and performance
   - Facilitate the Policy and Management Committee meetings

   Task Evaluation: The evaluation for this task may include a review of the reporting processes and assessment of areas for possible improvement.

WATERSHED ASSESSMENT

Introduction

The Program's objectives for monitoring and assessment have evolved during its first ten years. Early monitoring emphasized testing stormwater, dry weather discharges and sediment to assess pollutant loads and stormwater impacts on San Francisco Bay.

However, in August 1996 the Regional Board staff requested that the Program and other municipal stormwater programs in the region redirect their monitoring resources from fixed-station, wet-weather monitoring, to increased watershed assessment and long-term monitoring plans for creeks and other waterbodies.

In November 1999 the Regional Board staff released the Regional Monitoring and Assessment Strategy (RMAS) that describes a regional framework and schedule for assessment of pilot watersheds by various agencies. A letter sent to stormwater agencies in February 2000 affirmed that their participation in the RMAS would meet the intent of NPDES permit's requirements for assessing watersheds and estimating pollutant loading. The letter supported a functional approach to watershed assessment, which would vary according to the conditions and beneficial uses found in each watershed. The Program has incorporated this approach into its Watershed Assessment component.

These assessments will vary depending on the condition of the watershed. Functional assessment of relatively undeveloped watersheds may focus on habitat and flow conditions needed to sustain fishery resources and other creek-dependent life.

In contrast, urbanized creeks are usually highly altered by land use changes in their watersheds, and assessment of such systems might focus on their ability to support existing uses, such as non-contact recreation and industrial water supply. In a report funded by the Program, Gunther et al. (2000) identified potential indicators or benchmarks for evaluating the condition of a creek's beneficial uses. These include measurements of individual pollutants, characterization of the amount and timing of creek flow, and surveys of diversity and composition of plant and animal communities living in creeks and adjacent riparian areas.

The Program's 1996-2001 Plan included activities aimed at exploring waterbody-specific approaches for improving water quality and increasing awareness and stewardship by local residents. Experiences from these pilot watershed activities have led to development of the Alameda County Watershed Framework. The Watershed Framework is a working document that describes potential roles for the Program, member agencies, and others in local watershed efforts.

The Watershed Assessment component includes activities to coordinate, manage and present watershed-specific information and spatial data. Component tasks also include refining a suite of indicators of creek health and tailoring the content and presentation of data to make it more useful to managers and other stakeholders of local watershed-based initiatives. Activities under the

Monitoring and Special Studies component continue to include monitoring pollutant trends, evaluating the effectiveness of BMPs, and conducting special studies that have regional scope or are applicable to multiple watersheds. Coordination and facilitation of watershed-based activities are incorporated into the Planning and Regulatory Compliance component.

Component Objectives

1. Develop and maintain a GIS resource for watershed information
2. Use a variety of indicators to assess the functional condition of creeks and watersheds.
3. Provide useful watershed information to the Program and other watershed stakeholders
4. Evaluate component effectiveness

Major Tasks

1. **Develop and Maintain GIS for Watershed Information:** A Geographical Information System (GIS) is the most effective way to manage and analyze complex and diverse types of watershed data. The Program initiated a GIS-based inventory of ten pilot watersheds in FY 2000/01, building on an existing system developed for the San Lorenzo Creek watershed by the District. The objective of this task is to build a coordinated resource for watershed information that can be used by the Program, its member agencies and other watershed partners.

    - Expand available countywide coverages through conversion and data sharing with other agencies
    - Develop task list and schedule for adding GIS data and tools based on priorities of Program and local watershed efforts
    - Maintain and update coverages, metadata standards and data-sharing agreements
    - Coordinate with Program members, Monitoring and other Program components to incorporate additional data types
    - Coordinate with the Monitoring and Special Studies component to integrate stormwater and sediment monitoring databases and establish protocols for linking rainfall and flow data

    Task Evaluation: The evaluation of this task may include 1) review of completeness and quality of GIS coverages; and 2) evaluation of levels of participation in data-sharing by members and other agencies

2. **Characterize Functional Attributes of Creeks and Potential for Stormwater Impacts:** Beneficial uses, such as fisheries and wildlife, depend on natural ecosystem functions of creeks which link physical and chemical processes with biological populations of animals and plants, both in the creek channel and in the watershed as a whole. Because these systems are complex, watershed managers seek quantifiable indicators that may be applied over a range of conditions to help screen and characterize problems. Regional and national proposals for various indicators must be evaluated, calibrated and

refined for use in Alameda County creeks.

- Establish expected values for selected biological indicators (e.g., macroinvertebrates and fish) in relatively natural channels
- Explore ranges of application of additional measures of creek function, e.g., habitat, riparian buffers, and alterations to flow regime
- Promote consistent, effective indicator application among the Program, its members and other partners including volunteer monitors.
- Coordinate with regional initiatives and assessment strategies

Task Evaluation: The evaluation of this task may include 1) review of where various indicators have been applied; and 2) evaluation of indicators' consistency and usefulness in guiding management in pilot watersheds.

3. **Provide Useful Information To Assist Watershed Management Efforts:** As the General Program and its member agencies increase their participation in local stakeholder meetings and watershed management groups, specialized assessment needs will arise. Effective information presentation and data reporting may require tailoring to a variety of audiences ranging from agency workers to regulators and community groups. Products might include guidance on GIS mapping approaches, supporting materials for grant applications, and "report cards" or descriptions of constraints and opportunities for watershed management.

- Continue inventory and assessment of the pilot group of creek segments or lakes, and establish a plan for assessing other creeks or lakes within the County
- Work with member agencies and other watershed stakeholders in mapping and identifying data needs for individual watersheds
- Explore ways to inventory existing patterns of BMP application and other localized spatial data
- Develop models for data presentation for different types of representative watersheds
- Present watershed and other spatial data on the Program website and provide user-friendly guidance for its use
- Coordinate data definitions and data management structures through regular meetings with the Regional Board staff, BASMAA Monitoring Committee, and other partners
- Compile assessment data requested by Regional Board staff for water quality assessment reports (Clean Water Act section 305(b))

Task Evaluation: The evaluation of this task may include 1) evaluation of overall assessment effort; and 2) review of form, content and distribution methods for assessment information products, with comments and feedback from partners and other data users.

4. **Management and Evaluation of Component Effectiveness:** The Program will prepare reports, budgets and other items to assist with management and implementation of this component. The effectiveness of implementation will be evaluated as part of the annual report. Annual activities and work plans will be guided by (a) priorities and objectives developed under task 1; and (b) annual review of Watershed Management-related tasks conducted under the Planning and Regulatory Compliance component. Implementation of this component will initially focus on establishing a GIS resource (Task 1), and emphasis will gradually shift to providing other useful data to stakeholders.

   Task Evaluation: The evaluation of this task may include 1) review of progress towards goals in the long-term strategy; and 2) comments and feedback from Program's Management Committee.

MONITORING AND SPECIAL STUDIES

Introduction

Since its inception, the Program has tried to improve its understanding of stormwater pollution and to develop effective ways to control pollutants through monitoring and related activities. It has participated in the Regional Monitoring Program for Trace Substances (RMP), which monitors water and sediment in the Bay, and it has also conducted testing of stormwater and sediment at an array of fixed storm drain and creek stations throughout the urbanized portion of the county. This monitoring helped to identify a number of pollutants of concern that could be impairing the bay and urban creeks. Current knowledge about these pollutants, and the evolving strategies for addressing them, are described in Section 4 (Pollutants of Concern) and the Pollutant Reduction Plans in Appendix C.

In 1996, the Regional Board staff directed the Program to cease fixed-station wet-weather monitoring and redirect resources to watershed assessment and development of the long-term monitoring strategy for creeks. A draft plan for Long Term Monitoring and Assessment (Gunther et al., 2000) identified the need to link Program monitoring objectives more closely to beneficial uses of waters. Because of the wide range of watershed factors that can affect a waterbody's ability to support beneficial uses, a separate Watershed Assessment component has been developed to collect and manage complex spatial data. Monitoring and Special Studies component tasks will focus on the occurrence, long-term trends and control strategies for pollutants of concern, including the development of a long-term monitoring work plan for representative urban creeks.

The Program has conducted a variety of special studies to refine information needed to implement the requirements of previous Plans. Examples include studies of the effectiveness of specific BMPs, the use of Toxicity Identification Evaluations to identify diazinon as a probable source of toxicity in urban creeks, and studies to better identify the sources of diazinon and other pollutants.

The Program will continue to identify information gaps and conduct special studies on stormwater pollution to fill these gaps. These studies can be grouped into two categories: 1) studies focused on the pollutants of concern and other widespread pollutant problems; and 2) studies of pollutants responsible for more localized problems, such as litter and construction-related discharges. The implementation of BMPs to address pollutants that are local problems may need to be tailored to physical, social or jurisdictional conditions in specific watersheds. The evaluation of the effectiveness of these BMPs may need to consider conditions as well.

Component Objectives

1. Improve characterization and tracking of pollutants of concern that are found in stormwater
2. Evaluate the effectiveness of stormwater BMPs
3. Provide technical information to member agencies about pollutants

that may cause localized stormwater problems
4. Coordinate planning and reporting with related monitoring efforts
5. Evaluate component effectiveness and develop ways to measure the Program's effectiveness over time, including information on cost effectiveness

Major Tasks

1. **Characterize Concentrations and Long-Term Trends for Pollutants of Concern:** Section 4 (Pollutants of Concern) describes several pollutants that the Regional Board or U.S. EPA have identified as causing impairment of the bay or local creeks. Because the Regional Board needs to develop TMDLs for these pollutants it will require the Program's assistance in developing information about pollutant loading and changes in pollutant concentrations that result from the implementation of Pollutant Reduction Plans (Appendix C) and TMDLs. Past monitoring experience indicates that stormwater testing is useful for characterizing some constituents, and it will be continued at a long-term site on Castro Valley Creek. The Program will also sample sediment from creek beds, which is useful for surveying the occurrence of pollutants that are associated with fine particles.

   Activities for this task are described in the Annual Monitoring Work Plans submitted to the Regional Board. In addition to participating in coordinated regional data collection, the Program will develop a strategy for creek monitoring that incorporates the following objectives:

   - Review existing stormwater and sediment data to select effective sampling methodologies
   - Evaluate long-term trends in pollutant concentrations and toxicity in urban runoff
   - Establish expected baseline concentrations of mercury, PCBs and targeted organochlorine pesticides in sediment of creeks and storm drains and estimate loadings using available total suspended solids and discharge data.

   The Program has a database with the results of the fixed-station stormwater and sediment monitoring results collected during 1988-1995. This database will be updated with pollutant data from relevant special studies conducted by the Program and other local entities. Additional database modules for yearly rainfall patterns and flow history for one or more benchmark sites will be added to assist with assessment of long-term trends in water quality. Objectives for improving data interpretation include:

   - Incorporate grab sampling, rainfall and other types of data into the existing database
   - Facilitate linkages among pollutant concentrations, rainfall and spatial GIS data

   Task Evaluation: The evaluation of this task may include review of the Program's effectiveness in identifying long-term pollutant trends.

2. **Characterize Sources and Evaluate BMP Effectiveness for Pollutants of Concern:** Sources of pollutants must be understood in order to develop effective pollutant reduction measures. The impairments caused by the Pollutants of Concern are generally widespread because of the ubiquitous nature of the pollutants and the transport of many of these pollutants through the atmosphere. Because of the regional nature of these pollutants, the Program will need to coordinate closely with the Regional Board staff and with other BASMAA agencies. This task may involve a range of activities, including:

   - Special studies of specific watersheds with high pollutant concentrations
   - Special studies of sources or pathways
   - Modeling pollutant transport in runoff
   - Participation in coordinated regional studies such as the North Bay Copper Study
   - Participation in national pollutant prevention initiatives such as the Brake Pad Partnership

   Program members have implemented a variety of BMPs, but information about their effectiveness is not always readily available. While the new permit may incorporate additional provisions for treating runoff from new development, past studies by the Program and other stormwater agencies have shown that the effectiveness of treatment devices varies according to site-specific conditions. Evaluation of overall BMP effectiveness may necessitate evaluations of:

   - Structural treatment controls
   - Pollutant control tasks listed in the Pollutant Reduction Plans, such as fluorescent bulb recycling for mercury source control

   Task Evaluation: The evaluation of this task may include 1) tracking changes in the level of understanding of pollutant sources and controls; and 2) identifying ways to improve the effectiveness and application of BMPs.

3. **Assist Local Watershed Managers in Identifying Localized Stormwater Impacts and Provide Tools for Addressing These Impacts:** In contrast to the pollutants described in Section 4, some pollutants mainly affect waters nearby the source of the pollutant's release. Some beneficial uses, such as contact and non-contact recreation, are very location specific. Assessing stormwater impacts on these beneficial uses may involve a variety of site-specific factors, and the member agencies play a large role in choosing which specific factors and management objectives they would like better understood through studies. High-priority objectives identified by the Watershed Assessment and Monitoring Subcommittee include:

   - Evaluate toxicity or other impacts on bay fisheries
   - Characterize sediment and litter problems
   - Evaluate fecal coliforms and other indicators of human

health risk for light contact recreation areas
- Provide technical assistance to local watershed managers by providing data and guidance information

Task Evaluation: The evaluation of this task may include 1) review of successes and limitations of various approaches to managing localized issues under different conditions; 2) assess feedback from the Program's member agencies and other users about the effectiveness of Program-produced data and guidance materials.

4. **Coordinate with and Support BASMAA and Other Regional Monitoring Efforts:** The Regional Monitoring Program (RMP) is a collaborative effort to monitor the condition and health of San Francisco Bay. The Program, along with other NPDES-permitted dischargers, contributes to this effort annually. In addition, the BASMAA Monitoring Committee has worked with the Regional Board staff to establish the following three priorities for regional coordination of information: watershed assessment; BMP effectiveness; and characterization of pollutant loads and potential sources. The Program's participation in these regional activities increases opportunities for collaboration and coordination with other stormwater agencies.

   - Continue participation in the RMP
   - Participate in BASMAA Monitoring Committee and other regional monitoring groups
   - Explore monitoring partnerships with other agencies and organizations

   Task Evaluation: The evaluation of this task may include a review of useful information exchanged and partnerships that are initiated or enhanced.

5. **Management and Evaluation of Component Effectiveness:** The Program will prepare reports, budgets and other items to assist with management and implementation of this component. The effectiveness of implementation will be evaluated as part of the annual report.

   - Coordinate annual work plans to reflect the priorities of the Program's Long-Term Monitoring Plan
   - Promote cost-effective monitoring by designing data collection to meet multiple monitoring objectives, where possible.
   - Facilitate and support the Watershed Assessment and Monitoring Subcommittee meetings

   Task Evaluation: The evaluation of this task may include 1) a review of work plan development process; and 2) evaluation of accomplishments against Program objectives.

PUBLIC INFORMATION AND PARTICIPATION

Introduction

Most people are unaware that the largest source of pollutants to local creeks, lakes and the bay comes from the stormwater that flows off the cityscape picking up drops of motor oil, brake pad dust, exhaust emissions, pesticides, dirt and litter and, in most cases, receiving no treatment. These sources of pollutants result from the small, incremental and collective activities of everyone in Alameda County. Public information and participation is one of the keys to preventing stormwater pollution. The better that everyone understands the importance of stormwater pollution, their own, often unintentional, contribution to the problem, and simple things that we can do about it, the cleaner our creeks and the bay will become.

This component of the program focuses on providing information to residents in order to enlist their help in preventing stormwater pollution. The Public Information and Participation Subcommittee oversees this component's activities. This subcommittee is also responsible for ensuring the consistency of terminology, format and style among all of the Program's educational outreach efforts.

A summary of the progress being made in public awareness is described in the Program Description Section under Program Achievements.

Component Objectives

1. Educate residents about stormwater pollution problems.
2. Encourage residents to adopt less polluting and more environmentally beneficial behavior.
3. Assist member agencies with watershed awareness efforts and provide stewardship opportunities.
4. Improve public information and participation effectiveness through partnering with other organizations.
5. Evaluate component effectiveness and make improvements.

Major Tasks

1. **Implement Targeted Outreach:** The Clean Water Program has been working with other municipal stormwater agencies through BASMAA to identify categories of pollutants and pollutant generating behavior to target as part of regional advertising and action campaigns. This pooling of resources has helped to generate more effective campaigns than could be achieved by working independently.

   It is anticipated that future targeted campaigns will focus on helping to implement the Pollutant Reduction Plans for specific water quality impairing pollutants. The pollutants that appear to be priorities on the Regional Board's list include mercury, PCBs and dioxin compounds, and pesticides (diazinon, chlordane, dieldrin and DDT). Another possibility would be to develop and implement a countywide anti-littering campaign. The campaigns will focus primarily on targeting

residential sources and encouraging residents to prevent pollution.

The Public Information and Participation (PIP) Subcommittee will develop and update a list of priorities for helping to select future campaigns. Criteria for the selection of priorities will include that a significant portion of the pollutant-generating behavior originates from residents. It will be important to continue to evaluate the effectiveness of each campaign and not to focus too much on the same type of pollutant or category of pollutants.

The General Program will also collaborate with groups such as the Bay Area Air Quality Management District, the Alameda County Waste Management Authority, Home Builders Association of Northern California, and other groups to expand the impact of any targeted outreach.

2. **Continue to Reinforce General Outreach Messages:** Existing PIP materials that the PIP Subcommittee determines are useful enough to continue in circulation will be updated, as needed, and reprinted or produced for each agency to distribute and for distribution by the General Program on its website and through other methods. The PIP Subcommittee may choose to have more of the existing materials translated into additional languages, if this has been identified as an effective way to reach groups whose primary language is not English. The continued reinforcement will also occur through increased collaboration with other public agencies and private organizations with common interests.

3. **Provide Educational Support and Watershed Stewardship Support:** This task will include helping to educate students about stormwater pollution prevention and related environmental issues. The General Program has actively supported a number of school focused educational endeavors, including Bay Savers (targeted to fourth graders), Kids in Creeks/Gardens/Watersheds (targeted to teachers) and Estuary Action Challenge. The PIP Subcommittee will decide at least every two years which educational activities to support based on the known or expected effectiveness of the activity and how well it addresses the objectives of the PIP component.

   This task will also involve continued support for the Community Stewardship Grant program.

   Lastly, this task will include training for member agency staff responsible for PIP. This training may also be expanded to include other targeted groups such as was done with the *East Bay Watershed Management Symposium* in 1998 and *Turning the Tide: Balancing New Development and Clean Waters* symposium in 2001.

4. **Assist Member Agencies Implement and Improve the Performance Standards:** This task will include assisting the member agencies to implement their PIP performance standards. This assistance may include undertaking any project that will

result in additional tools and means for the member agencies to better implement the performance standards. In the past this has included such things as purchasing kiosk displays and dioramas for the member agencies to use at public events.
This task will also include review and, if needed, improvement in the performance standards at least every two years. This review will occur as part of PIP Subcommittee meetings. The evaluation information collected as part of Task 5 will be used to decide how and where to make improvements.

5. **Manage Component and Evaluate and Improve Its Effectiveness:** The General Program will assist the PIP Subcommittee and its work groups to conduct its meetings and prepare any needed NPDES permit required reports and work plans. This task will also include assisting with the development of annual General Program component work plans and budgets.

   The effectiveness of this component will be evaluated as part of the following types of activities, which are offered as examples:

   - Conduct a public awareness survey similar to the one conducted in 2000.
   - Evaluate the information being submitted as part of the annual reports.
   - Survey member public agencies to obtain information about how well this component and the performance standards are working.
   - Evaluate the Regional Board staff's reviews of the Clean Water Program's performance in this area.
   - Review information collected elsewhere of tangible progress. This may include tracking changes in behavior based on pre and post- campaign surveys paid through participation in BASMAA.

   The PIP Subcommittee as part of developing its annual work plan and budget will consider improvements to the General Program at least annually.

MUNICIPAL MAINTENANCE ACTIVITIES

Introduction

Municipal maintenance staff comprises one of the largest group's of public employees whose everyday work sweeping and repairing streets, cleaning storm drains, and applying herbicides can directly help to prevent stormwater pollution. In addition, the hundreds of maintenance field personnel play an essential role in reporting on illicit discharges and pollution problems that need to be fixed. The maintenance staff also helped to spread the word about stormwater pollution prevention among its maintenance counterparts in other public agencies.

The Maintenance Subcommittee, which is one of the oldest in the Program, is responsible for helping to implement this component's activities.

Component Objectives

1. Optimize pollutant removal during routine maintenance activities such as street sweeping and maintenance of storm drainage facilities.
2. Prevent or minimize discharges to storm drains and watercourses from road maintenance, parks, corporation yards and other publicly owned facilities.
3. Provide information and education about the Alameda Countywide Clean Water Program to agency employees.
4. Evaluate component effectiveness and make improvements.
5. Facilitate reporting.

Achievements

One of the accomplishments of the Program has been to reach a consensus among the member agencies on how to implement the diverse activities involved in municipal maintenance so as to minimize the stormwater pollution. This resulted in the development of performance standards for street cleaning; storm drainage and watercourse maintenance; litter control; road repair and maintenance; and corporation yard operations.

One of the core maintenance areas has been the use of street sweeping to remove potential pollutants prior to their being flushed into local creeks and the bay. All of the municipalities report their street sweeping and storm drainage cleaning activities on a standardized monthly form. In Fiscal Year 1999/00 the collective street sweeping effort of all of the municipalities resulted in the sweeping of about one quarter of a million curb miles of street with the removal of over 78,000 cubic yards and 1,000 tons of material. These amounts are similar to what has been achieved in most recent years, except during the El Nino year in 1998 when the amount of material removed by sweeping was reduced probably because the persistent rains flushed material away before it could be swept up.

The Program has well attended annual training workshops for municipal maintenance staff. During the last three years this training has been augmented creatively by the sweeper rodeo and similar events to demonstrate Best Management

Practices usage in an engaging manner. In addition, in 2000 the Program hosted an educational outreach workshop that was attended by representatives from public agencies outside of the Program and by PG&E.

Major Tasks

1. **Implement and Assist with Performance Standards:** Each agency will implement the municipal maintenance performance standards presented in Section IV. The performance standards include the following major activities:

   - Street Sweeping
   - Storm Drain Cleaning
   - Training
   - Reporting

   The General Program will work through the Maintenance Subcommittee to resolve implementation and consistency issues.

2. **Coordinate Maintenance-Related Activities with Other Subcommittees of the ACCWP, Other Agencies and Private Industries**: The subcommittee will work with appropriate staff from other Subcommittees of the ACCWP, park and recreation departments, and other public agencies and private industries whose activities are similar to or potentially affect municipal maintenance activities to identify activities of concern. Examples of other public agencies and private industries include PG&E, water suppliers and utilities, garbage collection companies, the Port of Oakland, golf courses, private recreational facilities and animal confinement areas.

3. **Optimize Data Management and Analysis**: The General Program will optimize ongoing collection, recording and analysis of maintenance data. This will include continuing to evaluate if the types of maintenance data being collected are useful and if other types of data should be collected. Examples of potential studies and data analysis include the following:

   - Leaf collection programs
   - Litter abatement programs

4. **Outreach and Training:** The General Program will facilitate outreach and training activities aimed at preventing discharges from maintenance activities, with direction from the Maintenance Subcommittee. This includes selecting the appropriate forum (e.g., workshops, round table meetings, work groups, inter/intra-agency coordination meetings, etc.) depending on the target audiences (e.g., ACCWP agencies, other agencies, property owners, residence, etc.). The Maintenance Subcommittee will also coordinate outreach activities with other ACCWP Subcommittees when the objectives of a planned outreach and training activity conducted by the Maintenance Subcommittee overlap with the objectives of another Subcommittee.

   The Maintenance Subcommittee will identify a target audience at least once every two years; the Subcommittee will select the appropriate forum for the outreach depending on the selected audience.

The General Program will develop and update materials (such as BMP flyers, brochures, posters, etc.) that are needed to support outreach and training activities, as determined by the Maintenance Subcommittee.

5. **Manage Component and Evaluate and Improve Its Effectiveness:** The General Program will assist the Maintenance Subcommittee and its work groups to conduct meetings and prepare any needed NPDES permit reports and work plans related to this component. This includes assisting with the development of annual General Program budgets. The following activities are examples of how the effectiveness of this component may be evaluated:

   - Survey member agencies to obtain information about how well this component and the performance standards are working.
   - Evaluate the information being submitted as part of the annual reports.
   - Evaluate the Regional Board staff's reviews of the Clean Water Program's performance in this area.

NEW DEVELOPMENT AND CONSTRUCTION CONTROLS

Introduction

New development offers a unique opportunity to construct projects that prevent stormwater pollution. Historically projects were constructed by building up to or over culverted creeks, constructing drainage ways to convey runoff off of project sites quickly, and ignoring opportunities to prevent or treat stormwater runoff. These developments lead to the destruction of flood plains and alterations in the natural structure and function of creeks, as well as to increases in the amount of stormwater pollution.

Better ways to design and construct new projects have received a considerable amount of attention in recent years. In 1994 the Regional Board staff developed its *Staff Recommendations for New and Redevelopment Controls for Storm Water Programs.*

The concepts in this document were used to develop the performance standards for New Development. In 1998 the Program and other Bay area municipal stormwater programs developed through BASMAA the *Start at the Source* manual. This manual describes a comprehensive approach to planning environmentally sensitive developments that minimize increases in the amount of impervious cover and combine stormwater treatment systems into the landscaping. Additional models will be developed as part of meeting the new Standard Urban Stormwater Mitigation Plan requirements described in the Background Section under Recent Developments.

Component Objectives

1. Identify and help implement source controls, site design measures and post-construction stormwater pollutant and hydromodification controls.
2. Assist with incorporating controls on impairing pollutants prior to and following completion of load and waste load allocations as part of a Total Maximum Daily Loads process.
3. Ensure that public works construction and maintenance projects conform to the same standards as private projects.
4. During construction promote the use of controls to reduce the discharge of pollutants to the maximum extent practicable and effectively control non-stormwater discharges.
5. Evaluate component effectiveness and make improvements.

Achievements

The Clean Water Program has emphasized the development of tools to help implement this component of the Stormwater Quality Management Plan. This included developing suggested Conditions of Approval for residential, commercial and industrial developments and compiling a *Catalog of Structural Stormwater Quality Control Measures.* Training focused on Planning Commissioners and individual municipality planning and engineering staffs. Municipalities have begun to implement the *Start at the Source* types of stormwater design measures. This has included the use of

grassy swales at residential, commercial, industrial and public works developments in a number of cities and the District's construction and operation of a stormwater treatment pond draining about 500 acres of residential area in Fremont. With assistance from the Regional Board staff, other areas of emphasis have included improving controls on erosion and sedimentation and preventing the releases of construction related discharges.

Major Tasks

1. **Identify How To Implement Source, Site Design, Post-Construction Stormwater Treatment and Hydromodification Controls:** As part of the previous Stormwater Management Plan, the Clean Water Program emphasized the use of pollutant source controls and site planning measures, such as those found in the *Start at the Source* manual. The Regional Water Quality Control Board and municipal planning staff are interested in specifying more clearly how source, design, treatment and hydromodification controls need to be used as part of the maximum extent practicable control of pollutants from stormwater.

   This task will include the following activities:

   - Review the Santa Clara Valley Urban Runoff Pollution Prevention Program's work on implementing its new permit requirements that address these types of controls. This will also include identifying and reviewing useful approaches of other municipal stormwater programs in California and elsewhere.
   - Identify and work with a stakeholder group to develop a method for appropriately integrating pollutant and hydromodification controls as requirements for new development.
   - Submit the Clean Water Program's agreed upon method for implementing pollutant and hydromodification controls to the Regional Board staff and, based on feedback, make any needed changes.
   - Identify assistance that the Clean Water Program's member agencies will need in order to implement the new, agreed upon controls.
   - Every two years review and, if appropriate, improve the agreed upon controls based upon implementation experience and other new information.

   Task Evaluation: The evaluation of this task may include 1) determine whether the General Program was able to achieve consensus among the stakeholders regarding the new controls and 2) obtain feedback from the Regional Board staff on how well the agreed upon controls met its expectations.

2. **Help Implement Source, Site Design, Post Construction Stormwater Treatment and Hydromodification Controls:** This task will include assisting the member agencies to implement the agreed upon more specific pollutant and hydromodification controls. This may include the following types of activities, which are offered as examples:

- Modify and improve the performance standards to incorporate the agreed upon control methods.
- Develop and update the Conditions of Approval, development guidance and review checklists.
- Track and discuss at New Development Subcommittee meetings municipal case studies of new development/redevelopment projects that are illustrative of successes, problems and questions about the control method.
- Develop guidance on cost-effective ways to implement the controls, such as, updating the "Project Worksheet for Permanent Stormwater Quality Controls."

Task Evaluation: The evaluation of this task may include: 1) assess the information being submitted as part of the annual reports; 2) obtain feedback from the municipalities about how successful the implementation of the controls has been; and 3) survey builders on how helpful the more specific controls and implementation tools have been and ways that they can be improved.

3. **Assist with the Development of Watershed Information and Facilitate Its Use:** This task will involve identifying the watershed information needs of the member agencies so that this information may be collected for use by agency planning and engineering staff. The actual collection of most watershed information will be conducted as part of the Watershed Assessment component. This task will also include assisting the member agencies with the use of watershed information that has been collected.

   Task Evaluation: The evaluation of this task may include a survey of the agencies' planning and engineering staffs to see how well their watershed information needs were met.

4. **Promote Outreach and Training:** This task will include reinforcing and expanding educational outreach to agency planning and engineering staff, Planning Commissions, City Councils, builders, and builders' consultants and contractors. The next wave of this outreach and training will focus on helping everyone to understand and implement the more specific pollutant and hydromodification controls developed as part of Task 1. This outreach and training will include the following:
   - Conduct at least one outreach and/or training event annually that is targeted to either agency staff or to the building industry. This may be conducted in collaboration with other agencies, organizations or groups.
   - Develop and distribute outreach material that goes beyond the trifolds that have been developed in the past.
   - Compile and distribute, in binders, to agency staff copies of all of the guidance and educational material that have been developed by the subcommittee.
   - Develop and maintain a mailing list of designers,

builders, developers that may be used by member agencies to do outreach.

Task Evaluation: The evaluation of this task may include 1) the number of staff trained from each of the targeted groups; and 2) summaries of the feedback obtained from recipients of training and outreach.

5. **Manage Component and Evaluate and Improve Its Effectiveness:** The General Program will assist the New Development Subcommittee and its work groups to conduct its meetings and prepare any needed NPDES permit required reports and products. This task will also include assisting with the development of annual General Program work plans and budgets. As part of developing the annual work plan and budgets, the New Development Subcommittee will consider ways to improve the General Program.

   Task Evaluation: The evaluation of this task may include: 1) review how well the municipalities are meeting the new NPDES permit requirements that affect new development and redevelopment, this may include summarizing the Regional Board staff's reviews of member agency performance in this area; and 2) review information collected elsewhere of tangible progress, such as changes in environmental indicators developed by the Stormwater Environmental Indicators Pilot Demonstration Project in Santa Clara Valley.

ILLICIT DISCHARGE CONTROLS

Introduction

One of the most visible reasons for having a Program is to eliminate pollution caused by materials being poured, spilled, dumped, washed, or discharged into the municipal storm drain system. One of the Clean Water Act's few explicit stormwater dictates is that permits include a "requirement to effectively prohibit non-stormwater discharges into the storm" drain systems. The federal regulations allow the discharge of some minor types of non-stormwater discharges, such as under specified conditions.

The Program has been proactive in identifying and eliminating illicit discharges to the municipal storm drain system. This has included enlisting the help of each agency's municipal maintenance and other field staff who are most likely to see what is being discharged to the storm drain system or dumped where it may become waterborne. A brief summary of the progress being made is described in the Achievements section below.

Component Objectives

1. Control illicit discharges by conducting field surveys of the municipal storm drainage conveyance system and identifying and eliminating the sources of non-stormwater discharges.
2. Effectively coordinate spill response and clean-up with existing programs.
3. Optimize illicit discharge control activities through planning and prioritization.
4. Address discharges that may not be considered illicit if properly managed.
5. Partner with other Subcommittees, agencies, and groups to increase public awareness on how to effectively and efficiently prevent pollutant discharges to the storm drains.

Achievements

The Program has conducted several training workshops for illicit discharge inspectors to improve member agencies' familiarity with Best Management Practices for identifying and eliminating illicit discharges. In 1995 the Program developed a standardized form for documenting illicit discharge findings and controls. This systematic approach has helped to identify the predominant types of illicit discharges so that additional, targeted educational outreach could be undertaken.

Since 1995 the member agencies have identified and eliminated approximately 5,000 illicit discharges. During this period the number of illicit discharges being found each year has about doubled and the number of illicit discharges that led to enforcement has approximately quadrupled. The increase in the number of illicit discharges being found may reflect an improvement by illicit discharge inspectors, maintenance staff, outside agency staff and the general public in identifying and reporting illicit discharges incidents.

Major Tasks

1. **Implement and Assist with Performance Standards:** Each agency will implement the performance standards specified in Section 5 for illicit discharge control activities. The performance standards include the following major activities.
   - Developing a five-year Action Plan for conducting field surveys of the agency's watershed.
   - Conducting field surveys.
   - Investigating illicit discharge reports and conduct appropriate follow-up.
   - Effectively eliminate illicit discharges through education and enforcement.

   The Industrial & Illicit Discharge Control (I&IDC) Subcommittee will review the performance standards at least every two years and make any needed improvements. The General Program will work through the I&IDC Subcommittee to resolve implementation and consistency questions.

2. **Assist Member Agencies Comply with Requirements for Conditionally Exempt Non-Stormwater Discharges:** The General Program will continue to facilitate compliance with non-stormwater discharges identified in the NPDES permit as conditionally exempt from discharge prohibitions to the storm drains. The General Program will work through the I&IDC Subcommittee and its work groups to identify effective control measures. The General Program will also facilitate the process for adding any non-stormwater discharges identified to the list of conditionally exempt non-stormwater discharges, and developing the appropriate BMPs.

3. **Track and Analyze Non-stormwater Discharge Reports:** Each agency submits quarterly summary reports on illicit discharge control activities as described in the performance standards. The General Program will collect and analyze this information for trends and other useful information to better plan and help improve illicit discharge control program activities, with direction from the I&IDC Subcommittee. For example, information on non-stormwater discharges can be used to identify needs for additional information or to develop discharge elimination/disposal priorities for categories of discharges.

4. **Conduct Outreach and Training:** The General Program will facilitate outreach and training activities to prevent illicit discharges, with direction from the I&IDC Subcommittee. This includes selecting the appropriate forum (e.g., workshops, round table meetings, work groups, inter/intra-agency coordination meetings, etc.) depending on the target audiences (e.g., ACCWP agencies, other agencies, property owners, residences, etc.). The I&IDC Subcommittee will also coordinate outreach activities with other ACCWP Subcommittees when the objectives of a planned outreach and training activity conducted by the I&IDC Subcommittee overlap with the objectives of another

Subcommittee. For example, the I&IDC Subcommittee will coordinate with the Watershed and Monitoring Subcommittee when conducting outreach activities that address pollutants targeted in Pollutant Reduction Plans.

The I&IDC Subcommittee will better define and identify the target audience at least once every two years; the Subcommittee will select the appropriate forum for the outreach depending on the selected audience. The General Program will develop materials (such as BMP flyers, brochures, posters, etc.) that are needed to support outreach and training activities, as determined by the I&IDC Subcommittee.

5. **Manage Component and Evaluate and Improve Its Effectiveness:** The General Program will assist the I&IDC Subcommittee and its work groups to conduct meetings and prepare any needed NPDES permit reports and work plans related to this component. This includes assisting with the development of annual General Program budgets. The following activities are offered as examples of how the effectiveness of this component may be evaluated.
   - Evaluate the information being submitted by ACCWP agencies as part of the annual reports.
   - Coordinate with the PIP Subcommittee to survey the general public on illicit discharges and BMPs to prevent the discharge of pollutants.
   - Evaluate the Regional Board staff's reviews of the Program's performance in this area.

INDUSTRIAL/COMMERCIAL DISCHARGE CONTROLS

Introduction

The prevention and control of stormwater pollution from commercial and industrial businesses is one of the major activities of the Program. The Program emphasizes educating businesses about methods to prevent and control stormwater pollution. Educational outreach to businesses has occurred primarily during facility inspections and through working with trade and business organizations on identifying appropriate Best Management Practices.

Educational outreach materials for the automotive repair shops and restaurants, the two most common businesses countywide, has included the development of brochures, posters, and flyers. In addition, there are manufacturers and other more industrial types of businesses that are required to have coverage under the California Industrial Stormwater NPDES General Permit. Since the municipalities are required to control any type of stormwater that discharges to their municipal storm drain system, the municipalities do not treat one type of business differently than another.

The Industrial & Illicit Discharge Control Subcommittee is responsible for overseeing the implementation of this component and the Illicit Discharge Controls component.

Component Objectives

1. Reduce the amount of pollutants in stormwater runoff to the maximum extent practicable from industrial and commercial facilities.
2. Eliminate effectively non-stormwater discharges from industrial and commercial facilities to the municipal storm drain system.
3. Identify and eliminate potential stormwater pollution sources through facility inspections, outreach activities, and appropriate follow-up including enforcement.
4. Provide incentives, both positive and regulatory, for businesses to comply with stormwater requirements.
5. Evaluate component effectiveness and make improvements.

A summary of the progress being made in preventing and controlling businesses' contribution to stormwater pollution is described in the Program Description Section under Program Achievements.

Major Tasks

1. **Implement and Assist with Performance Standards:** Each agency will implement the performance standards specified in Section 5 for industrial/commercial discharge control activities. The performance standards include the following major activities.
   - Developing a five-year Inspection Plan and an annual Inspection Workplan for conducting business inspections.
   - Conducting business inspections.
   - Conducting outreach and enforcement to businesses to obtain compliance.

   The five-year Inspection Plan is a one-time permit requirement. Each agency will

describe its industrial and commercial base, as well as business inspection priorities and procedures. The description will include an estimate of the number of industrial and commercial sites requiring inspection for the five-year permit period and the numbers of facilities under each business type.

The Industrial & Illicit Discharge Control (I&IDC) Subcommittee will review the performance standards at least every two years and make any needed improvements. The General Program will work through the I&IDC Subcommittee to resolve implementation and consistency questions.

2. **Develop BMP Guidance:** With direction from the I&IDC Subcommittee, the General Program will develop materials to support illicit discharge control and industrial/commercial discharge control activities. This includes identifying target audiences and the format (e.g., brochures, flyers, checklist, poster, etc.) of the guidance material best suited for the target audience.

3. **Track and Analyze Facility Inspection Reports:** Each municipality submits inspection information on the standard report form as described in the performance standards. The General Program will continue to collect and analyze this information for trends and other useful information to better plan and help improve business inspection, outreach, and enforcement activities, with direction from the I&IDC Subcommittee. For example, information on the potential to discharge pollutants can be used to identify priority businesses for the following year's inspection or outreach activities.

4. **Conduct Outreach and Training:** The General Program will facilitate outreach and training activities to prevent pollutant discharges from business activities, with direction from the I&IDC Subcommittee. This includes providing incentives, both education/outreach and enforcement, for businesses to comply. The audience can include both agency and business groups or organizations. The I&IDC Subcommittee will also coordinate outreach activities with other ACCWP Subcommittees when the objectives of a planned outreach and training activity conducted by the I&IDC Subcommittee overlap with the objectives of another Subcommittee.

   The I&IDC Subcommittee will identify a target audience at least once every two years; the Subcommittee will select the appropriate forum for the outreach depending on the selected audience.

5. **Manage Component and Evaluate and Improve Its Effectiveness:** The General Program will assist the I&IDC Subcommittee and its work groups to conduct meetings and prepare any needed NPDES permit reports and work plans related to this component. This includes assisting with the development of annual General Program budgets. The following activities are offered as examples of how the effectiveness of this component may be evaluated:
   - Evaluate the information being submitted by ACCWP agencies as part of the annual reports.
   - Survey businesses on how the effectiveness of outreach and inspection activities described in this component and its performance standards.
   - Evaluate the Regional Board staff's reviews of the ACCWP's performance in this area.

SECTION 4 POLLUTANTS OF CONCERN

As a result of its 1998 assessment of water bodies in the Bay Area, the Regional Board listed San Francisco Bay as impaired due to the following pollutants: diazinon, mercury, polychlorinated biphenyls (PCBs), copper, nickel, chlordane, DDT, dieldrin, and selenium. The U.S. EPA subsequently added dioxin-like compounds as one of the bay's impairing pollutants; listed several creeks in Alameda County as impaired by diazinon; and listed Lake Merritt as impaired due to litter and low dissolved oxygen.

To address the contribution of these pollutants from stormwater, the Program is developing pollutant reduction plans (PRPs). PRPs provide a comprehensive list of actions the Program will take to further reduce the discharge of impairing pollutants that are the highest priority for the Regional Board: diazinon, mercury, copper, and PCBs (see Appendix C). This section of the Plan provides information on each of these pollutants, including, problem definition, sources, challenges, and the Program's approach to reducing the level of these pollutants in stormwater. Other pollutant reduction plans will be developed as needed.

DIAZINON

Problem Definition

Diazinon is a widely used organophosphate insecticide that has been detected in creeks throughout the Bay Area. During storm events, the concentration of diazinon in local creeks is often high enough to be toxic to some species of aquatic life. For example, 71% of stormwater samples collected from Bay Area creeks were lethal to a small crustacean, *Ceriodaphnia dubia*, and Toxicity Identification Evaluations (TIEs) have determined that diazinon was the primary cause of this toxicity (Katznelson, 1997). *C. dubia* is a standard U.S. EPA test species, and although it is not a resident species in local creeks, toxicity to *C. dubia* suggests that other aquatic insects that inhabit local creeks could also be adversely affected by the presence of diazinon. Based on the prevalence of stormwater toxicity and the results of the TIEs, the U.S. EPA listed Alameda, San Leandro, and San Lorenzo creeks as impaired by diazinon.

U.S. EPA has banned the sale of diazinon for urban use after 2004 due to concerns regarding potential environmental and human health impacts. However, the application of diazinon will be allowed to continue until the stock of diazinon sold prior to the end of 2004 has been depleted. Therefore, the level of diazinon in stormwater may continue to exceed toxic concentrations for several years after its sale is banned.

Diazinon is not the only insecticide found in Bay Area creeks. Other commonly used insecticides, such as chlorpyrifos, carbaryl, and malathion, also have been detected and may be contributing to toxicity. As diazinon and other insecticides such as chlorpyrifos are banned, other insecticides will be used in their place. The replacement

pesticides may cause equal or increased toxicity in stormwater discharges.

Sources

The primary source of diazinon in Alameda County creeks is stormwater runoff from urbanized areas. Diazinon is applied by both professional and non-professional applicators. About half of the estimated 30,000 pounds of diazinon used in Alameda County in 1995 was applied by residents who purchased the product at retail outlets. The remainder was applied by commercial pest control applicators. The most common target pests were ants, fleas, and spiders (Scanlin and Cooper, 1997).

Although improper use or disposal may account for some of the diazinon in stormwater, recent studies suggest that a major source is use in accordance with label directions (Scanlin and Feng, 1997). Only a small amount of pesticide causes toxicity in creeks, therefore, even proper use could account for the toxic concentrations observed. For example, Scanlin and Feng (1997) often observed toxic concentrations in a creek where it was estimated that only 0.3% of the diazinon used in a small, urbanized watershed ended up in the creek. This percentage of pesticide entering runoff is what would be expected for runoff from proper use. For example, Balogh and Walker (1992), in a study of agricultural runoff, estimated the maximum runoff rate for most pesticides under normal conditions at between 0.5% and 1% of the total quantity applied, and initial results of a study to assess diazinon runoff from urban sites suggests that pesticide runoff from these sites is of about the same proportion as in agricultural applications (ACCWP).

Challenges

There are major regulatory, economic, social and technical obstacles to significantly reducing the level of insecticides in stormwater runoff. Following is a brief description of some of these obstacles.

Regulatory Obstacles: Nationally, insecticides are regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The criterion for acceptability under FIFRA is that "the insecticide *does not cause unreasonable adverse effects* to people or the environment when it is used according to the product label directions and restrictions" [emphasis added]. Under FIFRA, the economic benefit is weighed against the environmental impact when determining what is "unreasonable". Under the Clean Water Act, however, the water quality standard is much more restrictive and is stated as "no toxics in toxic amounts". The effect of this discrepancy is that one office of U.S. EPA may allow the use of an insecticide, while another office may require the development of a TMDL to address a water quality impairment due to its use.

In California, the use of insecticides is also regulated by the California Department of Pesticide Regulation (CDPR), and with the exception of some very limited authority granted to the county agricultural commissioner, local government is prohibited from regulating insecticide use (section 11501.1 of the California Code of Regulations).

Economic Obstacles: Pest control is a big business. Based on the estimated 15,000 pounds of diazinon (active

ingredient) sold annually, retail sales in Alameda County are in the neighborhood of $250,000 annually for diazinon alone. In addition to retail sales, there are approximately 50,000 licensed applications of diazinon for structural and landscape pest control in Alameda County every year (Scanlin and Cooper, 1997). Assuming an average per-application cost of $50, this use would generate over $2 million annually. Considering the financial resources available to the pesticide industry, it would be difficult for the Program to compete effectively through the use of public outreach/advertising.

Social Obstacles: Some people do not like bugs, and view one spider or ant around their house as one too many. This strongly ingrained perception is difficult to alter. Many people will still choose to use insecticides even if they are aware of the harm it causes aquatic ecosystems.

Technical Obstacles: Preventing the improper use or disposal of diazinon will not solve the problem. Previous and ongoing studies (Scanlin and Feng, 1997; and ACCWP) indicate that a significant portion of diazinon applied according to label directions moves off-site and eventually ends up in creeks. Many other insecticides migrate in a similar fashion. An effective solution must involve the development of an insecticide formulation that does not migrate from the site of application or one that is toxic only to the target pest.

Direct treatment of runoff to reduce diazinon or other insecticides is impractical for two main reasons. It is difficult to treat a large volume of water in a short period of time as occurs during storm events. Furthermore, diazinon in its dissolved form causes toxicity and it is not readily removed by the usual filtration or settling technologies.

Program's Approach

Lead by Example: Although municipal use accounts for a small fraction of the insecticides used in the county, the member agencies believe they should set an example by ensuring that they minimize risk to the environment and human health. Their first step is to conduct a review of annual insecticide use to determine the quantity used and the targeted insects. The next step is to evaluate the audit results to determine if additional actions could be taken to minimize risk. The results of the audit and evaluation will be submitted to the Regional Board. Member agencies will review existing practices, policies and ordinances to determine where improvements can be made to minimize risk to the environment and human health to the maximum extent practicable. If it is determined that they are not adequate, additional or revised policies or ordinances will be adopted. A summary of the review and recommended revisions will be submitted to the Regional Board.

Outreach to Residents: Advertising Campaigns over the past four years the Program has spent over $500,000 on outreach campaigns aimed at reducing the use of insecticides. For example, the Program participated in the Bay Area Stormwater Management Agencies Association's (BASMAA) regional television advertising campaign "When Ants Invade," which promoted less toxic pest control practices and won a national advertising industry award. The Program has also funded radio, billboard and

newspaper ads. The Program will continue to employ various media to reach residential audiences and encourage the use of a less toxic, integrated pest management (IPM) approach.

Point of Purchase Campaign The Program is participating in the innovative "Our Water, Our World" IPM campaign. Through the campaign the Program encourages stores that sell insecticides to also stock and promote the sale of less-toxic alternatives. Over 20 stores in the county are currently participating. The Program will aggressively market the IPM campaign to other stores with the goal of having at least 40 stores participating within the next two years. Through the distribution of printed material and information on its website, the Program will promote the IPM campaign to residents

Distribution of Informational Material The Program has printed and distributed over 250,000 pesticide-related brochures, fact sheets and informational guides. These materials are distributed by the Program and its member agencies. The Program has been constructing and staffing a stormwater exhibit at the County Fair for the past seven years and has maintained a booth at the Home and Garden show twice a year. Member agencies have been distributing material at their offices and at events such as watershed festivals and Earth Day fairs. The Program will continue these activities and will also distribute material through its website (www.cleanwaterprogram.com).

Outreach to Commercial Facilities: Some commercial facilities hire licensed applicators or self- apply insecticides. Through the Industrial/Commercial Discharge Control Component of the Program, the municipalities will conduct outreach to selected business sectors. The Program will develop or adapt outreach materials that are appropriate for specific business sectors. These materials will be distributed by the municipalities as part of their regular inspection programs. The Program intends to target retail food establishments in Fiscal Year 2001/02.

Partner with Licensed Pest Control Applicators: Licensed pest control applicators apply approximately half of the diazinon used in Alameda County (Scanlin and Cooper, 1997). Any successful effort to minimize the environmental impact associated with insecticide use will need to have the support of the licensed applicators. The Program is committed to working with the licensed applicators to develop an approach that will allow them to maintain their profitability and provide an effective service to their customers in a way that minimizes environmental impacts. The Program will contact licensed applicators in the county, and will work (with those who are willing) to set up a program to minimize water quality impacts from structural pest control applications. The Program will attempt to coordinate this effort with other programs such as the Bio-Integral Resource Center.

Partner with Other Agencies: County Agricultural Commission The Alameda County Agricultural Commission (Commission) has been very involved in the effort to reduce environmental impacts of insecticide use. Representatives of the Commission have attended the Urban Pesticide Committee

and other related meetings. The Program will coordinate with the Commission in the development of outreach efforts, particularly for licensed applicators.

Household Hazardous Waste There are three permanent household hazardous waste (HHW) facilities in Alameda County. The Program has coordinated with the HHW program in the past and will continue to coordinate with the HHW program to promote the proper disposal of insecticides.

Monitoring and Special Studies: The Program has taken a lead in evaluating the sources of diazinon in stormwater in the Bay Area. In fact, one of the Program's studies, Scanlin and Feng (1997), was cited extensively in U.S. EPA's diazinon reregistration (U.S. EPA, 1999). The Program will continue its effort to provide information that will assist in the development of effective control measures.

Develop an Application/Runoff Model The Program is in the process of developing a computer model of the application and runoff of insecticides from an urban area. Certain insecticides or formulations of insecticides may be more likely to be transported by stormwater. The SWMM-based model uses properties such as water solubility, vapor pressure, and environmental persistence to predict stormwater impacts of insecticide use. The Program believes that the model will be useful as a tool to evaluate the impact of alternative control strategies as well as in evaluating the potential impacts of insecticides that will replace diazinon.

Track Trends in Diazinon Concentrations and Stormwater Toxicity The Program will continue to track diazinon concentrations and toxicity in stormwater runoff to assess the effectiveness of its control activities and monitor the effect of the diazinon ban. A detailed sampling plan will be included in the Program's Long Term Monitoring Plan (draft available, August 2001).

Participate in the Regulatory Process: The Program will coordinate with BASMAA, the California Stormwater Quality Task Force, and the Urban Pesticide Committee to provide data, express concerns, and request consideration of its issues in U.S. EPA's and CDPR's insecticide registration decisions.

MERCURY

Problem Definition

Human exposure to mercury has been shown to cause damage to the liver, kidneys, brain and central nervous system; resulting in loss of physical coordination, mental retardation blindness and even death. Developing fetuses and young children are especially susceptible to poisoning.

Table 4-1: Estimated Annual Loadings of Mercury to San Francisco Bay

Source	Estimate of Annual Load (kg/yr)
Central Valley Watershed Sources	607
Within Basin Watershed Sources	168
Atmospheric Deposition	15
Sediment Remobilization	500
Wastewater Discharge	44
Total	1304

(Modified from Abu-Saba and Tang, 2000)

The National Academy of Sciences[1] (NAS) recently completed an independent study of the toxicological effects of methyl mercury to assist the U.S. EPA. Fish consumption is the major source of human exposure to methyl mercury in the U.S. The study found that chronic, low-level prenatal methyl mercury exposure from maternal consumption of fish has been associated with poor performance by offspring on neurobehavioral tests. The study found that these neurodevelopmental deficits are the most sensitive, well-documented effects of low-level, chronic exposure to methyl mercury. While the majority of the U.S. population has a low risk of adverse effects from methyl mercury exposure, individuals who regularly consume fish may have high methyl mercury exposure and demonstrate observable effects. The study also concluded "because of the beneficial effects of fish consumption, the long-term goal needs to be a reduction in the concentrations of MeHg in fish rather than a replacement of fish in the diet by other foods. In the interim, the best method of maintaining fish consumption and minimizing Hg [mercury] exposure is the consumption of fish known to have lower MeHg concentrations."

Analysis of fish tissue samples conducted on fish caught in the San Francisco Bay between 1994 and 1997 showed that concentrations of mercury exceeded established screening levels, suggesting potential health concerns for consumers of Bay fishes (Davis, 1998). Subsequent to the 1994 fish sampling, the California Office of Environmental Health and Hazard Assessment issued an interim Fish Consumption Advisory for all of San Francisco Bay, partly based on mercury concentrations.

Sources and Loadings

Mercury is used in the manufacturing of such items as thermometers, fluorescent lamps, batteries, paints, and other household products. Of particular importance to the Bay Area is the presence of several large natural deposits of mercury within the San Francisco Bay watershed. Much of this mercury was mined during and after the Gold Rush for use in mining operations.

The two largest sources of mercury to Bay waters are inflow from Central Valley watersheds and remobilization of Bay sediment, which account for 46% and 38% of the total load respectively (see Table 4-1). Much of the mercury in

these two sources is a remnant of its historic use in amalgamating gold.

The next largest category of sources of mercury to Bay Waters, is input from local watersheds, which accounts for approximately 13% of the total load. This category encompasses numerous sources, the largest being mercury from the New Almaden mining area in Santa Clara County that accounts for about 30% of the load from local watersheds (that is, 4% of total Bay load). Other sources contributing to the load from local watersheds include air deposition and soil erosion. Local sources contributing to air deposition are not well quantified but significant sources are believed to include crematoria, cement processing plants, stationary and mobile sources of fossil fuel combustion, and broken fluorescent lamps. Some portion of this mercury is deposited on urbanized surfaces in the county and flows to the Bay in stormwater runoff.

Challenges

Reducing levels of mercury in stormwater discharges poses a number of regulatory and technical challenges. Following is a brief description of some of these challenges.

Regulatory Obstacles: Many of the sources contributing mercury to stormwater runoff are beyond the control of local government, for example, some of the mercury is from global sources, and some is from local air sources, such as cement processing plants and crematoria that are regulated by the California Air Resources Board. The California Department of Toxic Substances Control (DTSC) under the Universal Waste Rule regulates the recycling and disposal of fluorescent lamps.

Technical Obstacles: Because mercury bioaccumulates in the food web, minute quantities of mercury in water and sediment can be hazardous. As with other pollutants, removing these minute quantities of mercury from a large volume of water in a short period of time poses a significant challenge. In addition, standard treatment technologies such as detention basins and wetland treatment systems may actually increase the methylation of mercury. This would exacerbate the problem because methyl mercury is the form that bioaccumulates in fish the most rapidly.

Program's Approach

Focus on Fluorescent Lamps:
Fluorescent lamps contain a small amount of mercury with most current generation lamps containing from 10 to 21 mg/bulb. Abu-Saba and Tang (2000) estimate that 13 million fluorescent lamps are disposed of each year in the Bay Area and from this 10-130 kg/year of mercury is released to the environment. Recycling technology is available, and the Regional Board staff has concluded that the recycling of fluorescent lamps is "one of the most effective, readily implementable measures" to reduce the discharge of mercury to the Bay (Abu-Saba and Tang, 2000).

Lead by Example As is the case with the use of insecticides, municipalities use only a tiny fraction of the fluorescent lamps used in the Bay Area. However, the member agencies believe they should set an example for county residents and businesses by ensuring that they minimize the risk to the environment

and human health. The agencies first step will be to conduct a review of their current practices regarding the recycling or disposal of fluorescent lamps. The next step will be to evaluate the results of the survey to determine if these practices could be revised to minimize the risk of mercury release to the environment. The results of the survey and evaluation will be submitted to the Regional Board.

Outreach to Businesses The commercial sector is the largest user of fluorescent lamps. Therefore, the Program will target its initial outreach effort towards businesses. The Program will work with the business community to identify current fluorescent lamp recycling and disposal practices and potential obstacles to increasing the level of recycling. The Program plans to work with the commercial sector and relevant entities such as the Department of Toxic Substances Control (DTSC), the Household Hazardous Waste program, recycling facilities, and the Regional Board to minimize obstacles and provide incentives for recycling. The Program will also develop or adopt outreach material and distribute it to businesses, either through direct mail or in conjunction with the municipalities' Industrial/Commercial inspection program.

Support Changes to Fluorescent Lamp Regulations Current regulations allow businesses to dispose of up to 25 fluorescent lamps at a time as solid waste. The Program will attempt to work with DTSC and other agencies to support and encourage changes to regulations that would promote increased recycling of fluorescent lamps.

Coordinate with Green Business Program The Green Business Program (GBP) helps businesses comply with environmental regulations, and then go beyond compliance to conserve energy, water and other resources, and reduce pollution and waste (www.abag.ca.gov/bayarea/enviro/gbus/gb.html). The Program has been a major supporter of the GBP for several years, and will coordinate with them to promote the recycling of fluorescent lamps at GBP facilities.

Coordinate with Household Hazardous Waste There are three permanent household hazardous waste (HHW) facilities in Alameda County. The Program will coordinate with the HHW program to promote the recycling of fluorescent lamps and other mercury containing products.

Other Mercury Related Efforts:

Participate in the Regulatory Process The Program has been an active participant in the Regional Board's Mercury Council and will continue to support the Regional Board's effort to develop a reasonable approach to solving the mercury problem in the Bay. The Program will also coordinate with BASMAA and the California Stormwater Quality Task Force to develop or support legislation that will help reduce levels of mercury in the Bay.

Track Trends in Mercury Concentrations in Creek Sediment During FY 2000/01 the Program conducted an extensive survey of mercury levels in creek and storm drain sediments throughout the county (Gunther, et al., 2001). During FY 2001/01 the Program will conduct a follow up survey. The Program will

continue its effort to develop information that will assist in the development of effective control measures. The Program is in the process of developing a long-term monitoring plan that will incorporate sediment sampling for mercury. A detailed sampling plan will be included in the Program's Long Term Monitoring Plan (draft available, August 2001).

COPPER

Problem Definition

At very low concentrations, copper is beneficial to aquatic organisms, but at higher concentrations it can be extremely toxic. This toxicity to aquatic life can occur at levels that are not harmful to humans.

The Bay is currently listed as impaired due to copper. However, recent studies have suggested that the Bay should not be listed as impaired, and the Regional Board has indicated that copper may be removed from the list of impairing pollutants on the condition that activities are undertaken to prevent increases in discharges of copper.

Sources and Loadings

Copper is a naturally occurring element that is found in many everyday items, including products associated with building construction, electronic equipment, automobiles, and agriculture. There are a number of significant sources for copper loadings to Bay, but the most significant is automotive vehicle usage. Automobile emissions often contain small amounts of copper. More significantly, brake pads can contain as much as 20% copper by weight. Recent research suggests that brake pad wear may be the largest single contributor of copper to the Bay, adding as much as 40% of the copper in stormwater runoff (Regional Water Quality Control Plant, 1997).

Another potentially significant source of copper to urban runoff is from its use in building construction. The use of copper materials in ornamental applications, gutters, down-spouts, roofs, and algae-resistant treatments for shingles all have the potential for contributing copper to stormwater runoff. Additional significant sources of copper loadings to the Bay include industrial and wastewater discharges; the use of copper in agricultural operations and water treatment systems; and the erosion of native soils, which contain small quantities of copper.

Challenges

Reducing copper levels in stormwater offers challenges similar to reducing diazinon and mercury for both source control and treatment. For example, the largest source of copper to stormwater is believed to be brake-pad wear. As local government agents, Program members are not able to regulate the manufacturing or use of brake pads. Treatment is also problematic since the dissolved form of copper causes toxicity and occasionally exceeds the chronic water quality standard. As with diazinon, dissolved constituents cannot be removed by standard treatment technologies, which rely on filtration or settling of particulates.

Program's Approach

Brake Pad Partnership: The Brake Pad Partnership is a nationwide effort to reduce the level of copper in brake pads. A coalition including stormwater programs, brake pad manufacturers, and the U.S. EPA are working together to find a solution. The partnership was initiated in the Bay Area, and the Program was one of its initial sponsors. The Program continues to support the effort and believes it is the best approach to addressing the problem.

Copper in Building Materials: Barron (2000) estimated that 20% of the copper in runoff from the Palo Alto (CA) area was from the use of copper in building materials. This was partly associated with a large number of luxury homes being constructed in that area at this time. The conditions in Alameda County may be quite different. However, the Program believes that this source of copper is worth looking into, since it could be significant and is one of the few areas where local governments have the potential to initiate a source control effort. The first step the Program will take will be to review construction practices in the county to assess their potential copper contribution. Based on the results of the assessment, municipalities will review and revise their practices if appropriate.

Municipal Maintenance Activities: Street sweeping has the potential to remove some of the copper from brake pad wear and other sources. The municipalities will continue their street sweeping activities in accordance with the municipal maintenance performance standards.

Monitoring and Special Studies: The Program will continue to track the concentration of copper in stormwater runoff in accordance with its Long Term Monitoring Plan (draft available in August 2001), the Program will conduct field studies or literature reviews as necessary to assist with the development and implementation of control measures. The Program also is contributing funding to the North Bay Copper and Nickel Study to investigate the effects of copper on aquatic life.

POLYCHLORINATED BIPHENYLS

Problem Definition

U.S. EPA lists Polychlorinated Biphenyls (PCBs) as a potential carcinogen. Additionally, PCBs are suspected of having negative impacts on the human immune system, reproductive system, nervous system, endocrine system, and digestive system (additional health effects information available at http://www.epa.gov/opptintr/pcb/effects.htm). Although their manufacture is now banned in the United States, PCBs continue to pose a serious risk due to their persistence in the environment.

PCBs accumulate in fatty tissue, hence organisms with a higher fat content will tend to accumulate more PCBs than organisms with a lower fat content. This is important to human health in that several of the more common food fishes in the Bay (e.g., striped bass, white croaker) are marked by relatively high fat content. Sampling conducted on Bay food fishes between 1994 and 1997 showed that concentrations of PCBs in fish tissue exceeded screening values, suggesting potential health concerns for consumers of these fishes (Davis *et al.*, 1998). Subsequent to the 1994 fish

sampling, the California Office of Environmental Health and Hazard Assessment issued an interim fish consumption advisory for all of San Francisco Bay, partly based on PCB concentrations found in Bay fishes.

Sources and Loading

PCBs were used in the past in a number of industrial and commercial applications; most importantly as coolants, lubricants, and insulators in electrical equipment such as transformers and capacitors. Additionally, PCBs at one time found many other uses in products such as paints, sealants, preservatives, and fire retardants.

In the mid-1960s, questions regarding the widespread presence of PCBs and their potential health impacts began to raise concern. Commercial production and import of PCBs into this country was banned by the U.S. EPA in 1979, though some manufacture of "closed system" products (having little potential for escape of PCBs from the system) was allowed to continue. By 1984, virtually all manufacture and distribution of products containing detectable levels of PCBs was banned by the U.S. EPA (Hetzel, 2000).

As with mercury, a large source of PCBs to the Bay water and biota is contaminated Bay sediment. The Regional Monitoring Program's sampling effort has detected areas of contaminated sediment adjacent to heavily industrialized land use. Of particular interest to the Program are elevated concentrations found in the Oakland Estuary, San Leandro Bay, and Emeryville Crescent.

Additional contaminated sediment may still be moving towards the Bay from contaminated sites within local watersheds. An initial survey of creek and storm drain sediment conducted in 2000 found a few sites with elevated concentrations (Gunther, et al., 2001). A follow-up study will be conducted in 2001 to determine if sources can be identified.

Challenges

The immediate obstacle to addressing PCB contamination is that the sources are dispersed and largely unidentified.

Program's Approach

Monitoring and Special Studies: The first step in addressing the discharge of PCBs in stormwater is to develop a better understanding of sources within the county. To do this the Program has initiated a multi-year study of the level of PCBs in creek and storm drain sediments throughout the county. A report on the initial round of sampling has been completed (Gunther et al., 2001). Follow-up sampling upstream of sites where elevated concentrations were found will be conducted during FY 2001-2001.

Participate in the Regulatory Process: The Program has been participating actively in the Regional Board's TMDL stakeholder process and will continue to do so.

Notes

[1] National Research Council. 2000. Toxicological Effects of Methylmercury. Prepublication copy.

SECTION 5 PERFORMANCE STANDARDS

Performance standards that are implemented by member agencies exist for the following five areas of the Plan:

- Public Information and Participation
- Municipal Maintenance Activities
- New Development and Construction Controls
- Illicit Discharge Controls, and
- Industrial and Commercial Discharge Controls

These performance standards define a large part of what each member agency must do to implement the Plan and comply with the NPDES permit. In addition, the Plan's Pollutant Reduction Plans for specific impairing pollutants also describe what the member agencies need to do to implement the Plan. It is expected that agency-led activities in the Pollutant Reduction Plans that prove worthwhile for long-term implementation will eventually be integrated into the performance standards.

CHANGES FROM PREVIOUS PERFORMANCE STANDARDS

The following performance standards are generally the same as during the previous SWMP. Some relatively minor modifications have been made to clarify and improve the performance standards. For example, the performances standards for Municipal Maintenance have been reduced and simplified by eliminating details about Best Management Practices and by retaining the more substantive sections that describe what the performance standards are intended to accomplish. A more substantive change was to move requirements for insect management from these performance standards to the Pollutant Reduction Plans. This change reflects the priority that will be placed on controlling the use of insecticides, the still developing approach for controlling insecticides and the need to involve all of the departments within the member agencies in minimizing insecticide usage.

The improvements in the performance standards reflect the collective experience of everyone who has been implementing the performance standards. Each of the proposed changes was discussed at length by the subcommittee that is directly involved in helping the member agencies to understand and implement the performance standards.

OPPORTUNITY TO PROPOSE ALTERNATIVE PERFORMANCE STANDARDS

As the Program continues to evolve, it is becoming increasingly important to recognize agency and watershed-specific differences. In order to allow appropriate tailoring and improvement of the performance standards, each agency retains the flexibility to propose alternative performance standards for its use that will accomplish equivalent or better water quality improvements than the area-wide performance standards described in the subsequent sections. Alternative agency-specific performance standards must be submitted in writing to the Regional Board's Executive Officer, and the alternative performance standards will not become effective until

approved by the Executive Officer, and that approval will be presumed unless it is rejected in writing within 90 days of submittal.

FLOOD CONTROL DISTRICT RESPONSIBILITIES

Some of the performance standards are appropriate for the Alameda County Flood Control and Water Conservation District (District) and Zone 7 of the District, and others are not. For example, the ACFC&WCD and Zone 7 do not conduct business inspection, nor do they sweep streets. Performance standards that each city, the county, ACFC&WCD and Zone 7 are responsible for implementing use the term "agency(ies)" in the performance standard. Performance standards that each city and the county are responsible for implementing, but not the District and Zone 7 of the District, use the term "municipality(ies)."

PUBLIC INFORMATION AND PARTICIPATION

I. PARTICIPATION IN PI/P SUBCOMMITTEE AND GENERAL PROGRAM ACTIVITIES

1. Each agency will designate a person responsible for implementing its Public Information/Participation (PI/P) activities and for acting as a liaison with the PI/P Subcommittee. This designated person will stay sufficiently informed by attending Subcommittee meetings or using other means to participate constructively in PI/P Subcommittee decisions and activities.

2. Each agency will chair the PI/P Subcommittee on a rotating basis so that the burden of providing leadership for the Program is shared in an equitable manner among all of the agencies.

3. Each agency will complete its PI/P quarter or semiannual deliverable reports within the schedule established by the General Program.

II. INTERNAL AGENCY COMMUNICATION AND TRAINING

City Staff and Officials

Each agency is responsible for identifying, developing, and communicating information about the Program so that its clean water staff, new employees involved with the Program, agency managers, and elected officials are well informed about their role in implementing the Program and the Program's requirements and progress. Each agency will provide information at least annually to these targeted groups.

Procedures and Training for Handling Telephone Calls from the Public about Stormwater

- Each agency will have a procedure that it follows for answering and efficiently routing stormwater related telephone calls to the appropriate municipal staff for handling.

- Agency staff assigned to answering or responding to telephone calls will be trained and familiar with the established procedures.

III. USE OF PROGRAM OUTREACH

As described in Task 5 of the PIP component work plan (Section 3), the General Program will be responsible for conducting surveys to evaluate the effectiveness of public education and outreach efforts implemented by the member agencies and by the General Program.

Distribution of Program Information Pieces

- Each agency will be responsible for identifying, in a written plan maintained at its offices, how it will distribute copies of General Program informational materials.

This plan will be available to the Regional Board upon request.

- Within two years of receiving its allotment from the General Program, each agency will have the goal of completing distribution of these materials to the target audience. Approximately one-half or more of the materials should be distributed within twelve months of receiving the allotment.

- Each agency will be responsible for tracking its inventory of General Program educational materials in order to be able to determine the need to re-order.

Storm Drain Inlet Stencils and Signs

- Each municipality will have stenciled or in some other ways signed ninety percent of its municipality-owned storm drain inlets or conducted activities that are demonstrably equivalent in terms of achieving awareness by residents that materials should not be disposed down storm drains. Demonstrably equivalent means that the municipality will provide examples of comparable alternative activities or have available a valid survey to show that its residents are as aware of where storm drains lead as are residents in comparable communities with stencils or signs. A description of the demonstrably equivalent activities must be submitted in writing and approved in advance by the Regional Board's Executive Officer, and this approval will be presumed unless disapproved in writing within 90 days of its submittal.

- As a goal all stencils and signs installed will be maintained sufficiently to be readable.

- In order to provide an educational opportunity, each municipality will optimize the use of local volunteers to assist with the stenciling or signage activities.

IV. AGENCIES' COMMUNITY OUTREACH PROGRAM

General Needs

The community outreach activity must be reasonably significant in terms of either the level of participation of the member agency and/or the number of people reached by the event.

Agencies will participate in community outreach activities from the areas listed below (under A. through F.) for the purpose of communicating the general stormwater pollution prevention message and complementing the General Program's specific message(s) for its targeted audience(s). Every other year at least one of these activities must be from Category F. The following provides the number of different activities that will be participated in annually:

Over 100,000 in population

- each municipality will participate in eight activities;

Between 50,000 and 100,000

- each municipality will participate in six activities;

Less than 50,000; Alameda County Flood Control and Water Conservation District (District); and Zone 7 of District

- each agency will participate in four activities.

A. Participate in Existing Community Events

Distribute ACCWP information by participating in existing community events (fairs, festivals, exhibits, etc.) held within its or a nearby jurisdiction. This participation may include the setting up of a booth, kiosk display, or other creative means of communicating the general stormwater pollution prevention message, using a specific message to a target group, or make a presentation to a local community service group.

B. Plan/Implement New Community Events

Play a major role in planning and staging a community or citywide event, examples include the following:

- Earth Day or other festival or fair;
- Business mixer;
- Seminar or target group; and/or
- Contests.

C. Contact Media and Conduct Advertising

Maintain local media contacts with local newspaper, radio, and television stations to be able to communicate the general stormwater pollution prevention message, complement the General Program's specific targeted audience(s) and message(s) and complement regional PI/P activities. This local media contact may include: adaptation and/or development and distribution of stormwater related press releases or use of paid advertising including advertising in local telephone directories.

D. Provide Program Information Through Other Venues

The following types of venues may be used:

- Agency newsletter;
- Other municipal newsletter;
- Local magazine;
- Utility bill inserts;
- Mailing to target group; and
- WebPages.

E. Develop and Implement Integrated Outreach Approaches

This area includes activities, such as the following:

- Point of purchase display and giveaway;
- Plan, create and distribute videos;
- Create and stage a play;
- Develop special displays or kiosks for your message especially interactive ones (such as slides in movie theaters);
- Develop/implement program for school curriculum and provide equipment;
- Support and partner with

other agencies to increase or improve pollution prevention capabilities (e.g., helping set up oil and/or antifreeze collection facilities); and
- Make and place signs on sweepers or other vehicles; and
- Place messages on workers' T-shirts.

F. Develop Watershed Awareness

This area includes one or more of the following types of activities that are listed as examples:
- Identify and support a friends of a watershed group and encourage creek cleanups (or if this is infeasible, lagoon or shoreline cleanups) or adopt-a-creek or other volunteer monitoring and resource inventorying activities.
- Conduct a creek cleanup (or if this is not feasible, lagoon or shoreline cleanups) within its jurisdiction on an annual basis; and
- Participate in a local event in its jurisdiction or neighboring jurisdiction as part of the Coastal Commission's annual Coastal Clean-Up Day and/or as part of Earth Day.

Special Needs

Each municipality will identify whether there are any special needs of some of its residents. An example of a special need would be if a significant percentage of the residents are native speakers of a language other than English or Spanish who would be able to better participate in the municipality's stormwater pollution prevention efforts by having materials available in their native language.
If a municipality has identified a special need not being addressed by the General Program, it will, on its own or in collaboration with other member agencies, develop and distribute translated materials or other special materials needed to fill the special need.

V. COORDINATION WITH SCHOOLS

1. If not being performed by others, each municipality will help to distribute to schools within its jurisdiction information provided by the General Program about its school outreach activities, such as, the Bay Savers, Kids in Creeks/Gardens/Marshes/Watersheds workshops, and community stewardship grants.

2. The General Program will continue to develop and produce materials for outreach to schools. Each municipality will make these materials available to schools in its jurisdiction, if not distributed by the General Program or other methods. This may include each municipality disseminating information on how to obtain copies of these materials if this is a more efficient way to achieve distribution.

3. Each municipality will also work with the local school district to encourage that appropriate stormwater pollution prevention and aquatic resource protection information will be taught to

school children within its jurisdiction.

MUNICIPAL MAINTENANCE – GENERAL

The following General Performance Standards apply to all municipal maintenance activities.

I. SPILL RESPONSE

1. If the spill is suspected to be toxic or hazardous materials, maintenance staff will call the public safety dispatcher, 911, and/or the local illicit discharge coordinator.

2. If non-hazardous materials are spilled, maintenance staff will contain the spill area immediately to prevent additional discharge of pollutants into the storm drain system and clean as soon as practicable.

3. Maintenance staff will report spills to, and work with, the agency's illicit discharge coordinator, or appropriate party, to determine the appropriate follow up response (e.g., track the source of the spill and identify product labels that have a bar code identifying the originating agency, contact Building and Planning Departments, send a clean-up bill to the responsible party, etc.).

II. TRAINING

Each agency will train employees and contractors in the use of the Spill Response Performance Standards as appropriate.

III. DISPOSAL OF WASTE MATERIAL AND CHEMICALS

1. Each agency will ensure proper handling and disposal of material removed from streets and storm drainage facilities to prevent discharges of pollutants to surface waters or groundwater.

2. Each agency will dispose of excess chemicals at an Alameda County Household Hazardous Waste Facility or other approved disposal location (or recycle the chemical.)

3. Each agency will properly dispose of or recycle used solvents/chemicals.

IV. CONTRACTORS

1. Each agency shall incorporate the municipal maintenance performance standards into municipal contract specifications.

2. Each agency shall provide volunteers and contractors with educational material describing the Municipal Maintenance Performance Standards as appropriate.

MUNICIPAL MAINTENANCE – STREET CLEANING

I. STREET CLEANING FREQUENCY

1. Each municipality will clean streets on at least a monthly average unless an alternative schedule is approved as described in number 2 below. In calculating this average, the number of curb miles swept in a fiscal year divided by the number of curb miles within a municipality will equal twelve or greater. The removal of cars should be encouraged by having a fixed sweeping schedule. Sweeping will be prioritized to clean the streets that have been found to be typically the dirtiest and to conduct sweeping prior to the rainy season.

2. If a municipality chooses to clean streets less than on a monthly average the rationale for the alternative standard must be describe in a written action plan. The rationale should demonstrate that the alternative schedule is equivalent in terms of protecting water quality as the annual average sweeping. The action plan must be submitted to the Regional Board as part of the Mid Fiscal Year Report or the Annual Report. The alternative standard will not be effective until approved by the Regional Board's Executive Officer, and that approval will be presumed unless it is rejected in writing within 90 days of its submittal.

II. STREET CLEANING OPERATION TO MAXIMIZE POLLUTANT REMOVAL

1. Each municipality will utilize, as appropriate, the Street Cleaning BMPs to maximize pollutant removal during sweeping activities. When purchasing new sweepers, each municipality will review alternative equipment and new technologies to maximize pollutant removal.

III. PROBLEMS ASSOCIATED WITH EFFICIENT STREET CLEANING

Getting Parked Cars Off Streets

1. Each municipality will maintain a consistent sweeping schedule.

2. Each Agency will utilize, as appropriate, the Street Cleaning BMPs to keep curbed areas clear during street cleaning.

Removing Large Accumulations of Leaves Just Prior to Sweeping

Each municipality will have a leaf removal option available to residents. The leaf removal may be conducted by an entity other than the municipality, for example, curbside leaf pick up by a waste management company. Each municipality will utilize, as appropriate, the Street Cleaning BMPs for specific leaf handling methods.

Maintaining Trees Near Streets

Each municipality will provide operators with adequate resources to conveniently report trees interfering with street cleaning.

IV. RECORD KEEPING

1. Each municipality will track miles swept using a broom odometer or by tracking mileage only when cleaning (do not include mileage to an area).

2. Each municipality will track volume or weight of material removed.

MUNICIPAL MAINTENANCE – STORM DRAIN FACILITIES AND WATERCOURSES

I. ROUTINE INSPECTION AND CLEANING

1. Each agency will inspect, and clean as necessary, storm drainage facilities (inlets, culverts, V-ditches, pump stations, open channels, and watercourses), once a year on average unless an alternative schedule is approved as described in number 2 below. The inspections and needed cleaning will preferably occur prior to the rainy season. In calculating this average, some facilities may be inspected more than once per year and others less than once per year.

2. If an agency chooses to inspect, and clean as necessary, storm drainage facilities (inlets, culverts, V-ditches, pump stations, open channels, and watercourses), less than an annual average the rationale for the alternative standard must be described in a written action plan. The rationale should demonstrate that the alternative schedule is equivalent in terms of protecting water quality as the annual average inspection. The action plan must be submitted to the Regional Board as part of the Mid Fiscal Year Report or the Annual Report. The alternative standard will not be effective until approved by the Regional Board's Executive Officer, and that approval will be presumed unless it is rejected in writing within 90 days of its submittal.

3. When cleaning storm drainage facilities, each agency will remove the maximum amount of material at the nearest access point to minimize discharges to watercourses.

4. Each agency will maintain a storm drainage facility inspection and maintenance plan. The Plan includes:

   a. Schedule for inspecting storm drainage facilities;

   b. Rational for determining when to clean inlets, etc.;

   c. Results of an evaluation to install additional screens or grates near or in inlets to inhibit discharge of litter, but where flooding is not a concern;

   d. Identification of target areas that tend to accumulate excessive pollutants for cleaning and/or public education; and

   e. Inventory of the storm drain system.

5. Unless provided for in an alternative plan approved by the Regional Board's Executive Officer, each agency will inspect twice a year storm drainage facilities that tend to accumulate excessive sediment and debris: prior to the rainy season to prevent flooding and discharge of pollutants and after the rainy season to remove sediment and debris.

6. Each agency will inspect storm drain inlets monthly during the wet season

in areas suspected of containing illegal dumping, and clean as necessary.

II. RECORD KEEPING

1. Each agency will report the amount of material removed when cleaning storm drainage facilities in monthly record keeping forms.

2. Each agency will document and track spill incidents and response to spill incidents either as described in the "Monthly Record Keeping Form" or as part of the Illicit Discharge Quarterly Summary Form.

3. Each agency will document and maintain the following records monthly for pump stations and watercourses:

   a. Areas/sites inspected,
   b. Silt and vegetation removal practices,
   c. Areas where man-made materials are removed, type and estimate of quantity or weight removed,
   d. Disposal practices and any testing results,
   e. Spill incidents and follow-up actions,
   f. Application of chemicals (type used, areas applied), and
   g. Areas for possible improvements.

III. INSPECTION AND MAINTENANCE

1. Each agency will inspect pump stations after the wet season and develop a schedule for maintenance activities prior to the next wet season.

2. Each agency will inspect trash racks and oil absorbent booms during or after significant storms. Remove debris in trash racks and replace oil absorbent booms as needed.

IV. PERMITS AND OTHER REGULATORY REQUIREMENTS

Each agency will coordinate with the California Department of Fish and Game, the U.S. Army Corps of Engineers, and other agencies as appropriate in order to comply with regulatory requirements prior to commencing work.

V. VEGETATION

See procedures in the Municipal Maintenance BMP Manual.

MUNICIPAL MAINTENANCE – CORPORATION YARDS AND AUXILIARY STORAGE AREAS

I. GENERAL BMPS

1. Each agency will ensure that necessary safety equipment and spill containment kits are readily accessible in areas where chemicals are used, in fueling areas, and in areas that have a potential for spills. Each agency will inspect safety equipment (eye flushing stations, etc.) regularly to ensure they are operational.

2. Each agency will assign one person the primary responsibility for ensuring that BMPs are implemented. This person will also be responsible for ensuring that all persons using the facility are aware of BMPs.

3. Each agency will stencil inlets to the storm drainage system with a message such as "No Dumping, Drains to Bay".

4. Each agency will conduct facility surveys annually - possibly in conjunction with hazardous materials management and/or spill prevention inspections.

5. Each agency will have a Storm Water Pollution Prevention Plan (SWPPP) for each corporation yard.

6. Each agency will inspect the yard routinely to ensure that there are no illegal discharges to the storm drain system and that during storms, pollutant discharges are controlled to the maximum extent practicable.

7. Each agency will sweep the corporation yard. The agency will dispose of material removed from streets and storm drainage facilities often to eliminate exposure to rainwater and runoff to the storm drain system.

II. WASHING VEHICLES/EQUIPMENT

1. Each agency will clean all vehicles/equipment on designated wash pad areas or off-site if needed so washwater drains to the sanitary sewer or is recycled.

2. Each agency will ensure that wash pad area and sump are large enough so that all washwater drains to the sanitary sewer or recycling system. The agency will re-grade area if necessary or install dikes to convey washwater.

III. REFUSE HOLDING AREAS

Each agency will store material removed from storm drainage facilities and streets on a concrete or asphalt pad in a contained area. The agency will drain liquids to the sanitary sewer or allow it to evaporate. If feasible, the agency will cover the storage area during the rainy season.

IV. FUEL DISPENSING AREAS

1. Each agency will store spill

containment kits nearby. If spills occur, the agency will use dry methods to clean the fueling area and follow procedures in the Hazardous Materials Business Plan (HMBP) and/or Spill Prevention Control and Countermeasure Plan.

2. Each agency will maintain signs reminding people not to "top off" tanks.

3. Appropriate spill equipment will be used when mobile fueling is implemented.

4. Each agency will cover fuel dispensing areas, when feasible. The agency will not conduct fueling over open ground (ground should be covered by concrete or asphalt protected with a sealant).

V. CHEMICAL USAGE AND STORAGE

1. Each agency will store paint and other chemicals in an approved covered containment area. If 55-gallon drums containing hazardous materials or wastes are stored outside, each agency will keep drums in an approved containment area.

2. Each agency will minimize use of chemicals. The agency will use water-based paints and non-toxic chemicals as much as possible.

VI. FLEET MAINTENANCE/VEHICLE PARKING AREAS

1. Each agency will minimize leaks from vehicles by performing routine inspections, repairing vehicles with significant leaks, and employing drips pans where appropriate.

2. Each agency will periodically dry sweep the area.

MUNICIPAL MAINTENANCE – LITTER CONTROL, ROAD REPAIR AND GRAFFITI REMOVAL

LITTER

1. Each agency will provide an adequate number of litter receptacles in commercial areas and other litter source areas. Agencies will make every effort to contain litter in receptacles.

2. Each agency will ensure litter receptacles are maintained on a frequent enough basis to minimize or prevent spillage.

3. Each agency will document and maintain the following records monthly:

   a. Areas targeted for litter removal

   b. Total amount of material removed

ROAD REPAIR

I. General

1. Each agency will schedule excavation and road maintenance activities for dry weather, if feasible.

2. Each agency will perform major equipment repairs at the corporation yard, when practical.

3. When refueling or maintaining vehicles and equipment on-site, each agency will use a location away from storm drain inlets and creeks.

4. Each agency will recycle used motor oil, diesel oil, concrete, broken asphalt, etc. whenever possible.

5. Each agency will contain diesel oil used to lubricate or clean equipment or parts.

II. ASPHALT/CONCRETE REMOVAL

Each agency will utilize, as appropriate, the Road Repair BMPs for protecting storm drain inlets prior to breaking up asphalt or concrete. The agencies will clean afterwards by sweeping up as much material as possible.

III. PATCHING AND RESURFACING

1. Each agency will utilize, as appropriate, the Road Repair BMPs for protecting storm drain inlets prior to patching and resurfacing activities.

2. Agencies will not stockpile materials in streets, gutter areas or near storm drain inlets or creeks unless these areas are protected.

3. Agencies will never wash excess material from exposed aggregate concrete or similar treatments into a street or storm drain inlet. Each agency will designate an unpaved area for clean up and proper disposal of excess materials.

IV. EQUIPMENT CLEAN UP/STORAGE

Each Agency will clean equipment at the end of the day at the corporation yard, when possible, and will cover sprayers and patching and paving equipment to prevent rainfall from contacting pollutants.

GRAFFITI REMOVAL

See graffiti removal BMPs in the Municipal Maintenance BMP Manual.

NEW DEVELOPMENT AND CONSTRUCTION SITE CONTROLS

The following performance standards apply to all Clean Water Program member agencies for all construction activity including clearing, grading and excavation activities that result in the cumulative disturbance of 10,000 or greater square feet of land that would discharge stormwater to the municipally-owned storm drain system. A member agency may consider a project exempt from these performance standards if it would disturb less than 10,000 square feet of land and it does not cause substantial or potentially substantial adverse change in the quantity and/or quality of stormwater runoff generated from the site considering all four of the following conditions:

- The size of the project is negligible;
- The amount of land disturbed is insignificant;
- The potential impact on stormwater quality and quantity is insignificant; and
- The intensity of the construction activity is minimal.

I. MEASURES AND POLICIES TO CONTROL THE QUALITY OF STORMWATER RUNOFF

1. Each agency will incorporate the New Development Subcommittee's conditions of approval into its standards for development, as appropriate.

2. Each agency will document permanent erosion and stormwater quality controls, controls during construction, and operation and maintenance of structural controls in conditions of approval for both public and private projects. Best management practices (BMPs) will be selected from appropriate guidance materials.

3. Each agency will ensure that stormwater quality requirements are included in plans and contract specifications for municipal construction projects.

4. Each agency will implement design guidelines and practices that incorporate water quality protection measures for both public and private projects.

The Following Will Be Implemented when General Plans and Ordinances are Amended:

1. Each agency will review and update General Plan policies and implementation measures that help preserve and enhance water quality.

2. Each agency will review and update legal authority provided in erosion control and stormwater management and discharge control ordinances.

II. EDUCATIONAL ACTIVITIES

1. Each agency will provide educational materials (BMP flyers, Blueprint for a Clean Bay, etc.) to municipal staff, developers, contractors, construction site operators, and owner/builders, as appropriate. (Requires coordination with the PIP Subcommittee.)
2. Each agency will educate:

- Staff responsible for development application and plan review on stormwater quality issues and controls. Agencies will provide information on municipal design guidelines, ordinances, conditions of approval, contract specifications and protected sensitive areas.

- Construction site inspectors on proper implementation and maintenance of erosion and sediment controls and materials/waste management BMPs.

- Other municipal staff involved in development and redevelopment projects (e.g., capital improvement, public works, and/or building inspectors).

3. Each agency will provide pre-application materials containing information on stormwater controls and requirements to developers.

4. Each agency will attach appropriate BMP information to building permits, as needed.

III. DEVELOPMENT APPLICATION AND PLAN REVIEW

1. Each agency will continue to evaluate the effects of development on stormwater runoff and wetlands in the CEQA process.

2. Each agency will consider water quality impacts in the context of their review and possible approval of both public and private development projects.

3. Agencies will require public and private development projects to include site planning and design techniques to prevent and minimize impacts to water quality. These may include the following:

   a. Minimize land disturbance.

   b. Minimize impervious surfaces, especially directly connected impervious areas.

   c. Use of clustering.

   d. Preservation of quality open space.

   e. Maintain (and/or restore, if possible) riparian areas and wetlands as project amenities, establishing vegetation buffer zones to reduce runoff into waterways.

4. Each agency will require public and private development projects to include permanent stormwater quality controls, as appropriate, if sufficient site planning measures are not implemented or feasible.

IV. EROSION AND SEDIMENTATION CONTROL

1. Each agency will review its erosion control program for adequacy, and identify and implement any improvements needed in the following areas:

   a. Enforcement authority (grading, erosion, and/or

stormwater control ordinances).

b. Minimum BMPs required.

c. Training and tools for inspectors.

d. Information for developers and contractors.

2. As a condition of issuance of a grading permit, each agency will require developers to prepare, submit to the agency for review and approval, and implement an effective erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

3. Each agency will require developers to provide permanent erosion and stormwater controls on plans submitted for projects.

V. STATE GENERAL PERMIT

Prior to construction of a project that disturbs ≥ 5 acres, each agency will require a copy of the Notice of Intent (NOI) sent to the State Water Resources Control Board for coverage under the Construction Activity Stormwater NPDES General Permit.

The Following Will Be Implemented upon Adoption of the New Construction General Permit:[1]

1. Prior to construction of a project that disturbs ≥ 1 acres, each agency will require a copy of the Notice of Intent (NOI) sent to the State Water Resources Control Board for coverage under a Construction Activity Stormwater NPDES General Permit.

2. Prior to the construction of a project that requires the filing of an NOI, each agency will require a copy of the project's Stormwater Pollution Prevention Plan (SWPPP).

VI. CONSTRUCTION SITE FIELD CONTROLS

1. Each agency will require that project applicants prepare and submit a Stormwater Quality Protection Plan[2] prior to the start of construction activity, to demonstrate that the owner, developer, and/or contractor has evaluated BMPs and provided those appropriate for protection of stormwater quality during construction activities.

2. Each agency will coordinate construction inspections and enforcement of corrective actions with Regional Board staff, if appropriate.

3. Each agency will inspect construction sites for adequacy of stormwater quality control measures on a regular basis, with the frequency of inspections based on considerations such as the size of the project, its potential impact on stormwater quality, and the amount of construction activity.

4. For construction sites requiring erosion sediment control plans, each agency will inspect sites prior to the beginning of the wet season

each year, to ensure that measures have been taken to prevent erosion and minimize discharges of sediment from disturbed areas.

5. For construction sites requiring erosion sediment control plans, each agency will inspect sites following each major storm event or series of events during the wet season of each year, to observe the effectiveness of erosion sediment control measures.

6. For project site inspections, inspectors will:
   a. If available, review the Stormwater Quality Protection Plan prior to conducting the inspection.

   b. Inspect for and effectively prohibit non-stormwater discharges, except those discharges which contain no pollutants.

   c. Whenever possible, visually observe the quality of stormwater runoff after a major storm event.
   d. Require proper implementation and maintenance of erosion sediment controls and material/waste management BMPs (e.g., covering stockpiled materials, designating work and storage areas) to minimize the discharge of pollutants.

   e. If appropriate, document stormwater violations and corrective actions.

VII. WATERSHED RESOURCE INVENTORY AND PLANNING

These activities will be coordinated with the Watershed Assessment and Monitoring (WAM) Subcommittee.

1. Each agency will develop and submit with the *Annual Report*[3] an approach and schedule for conducting a watershed management issues assessment based on guidance from the Regional Board and guidance being developed by the WAM Subcommittee as it becomes available.

The Following Will Be Implemented when General Plans and Ordinances are Amended:

1. Each agency will consider the criteria for sensitive areas as guidance when amending their General Plans.

2. Each agency will incorporate findings from the watershed resource inventories conducted by the WAM Subcommittee into General Plan amendments.

VIII. POLICIES FOR MAINTAINANCE AND OPERATIONS OF FLOOD CONTROL CHANNELS AND WATER COURSES) –

These performance standards apply to all agencies that maintain creeks and flood control channels.

Each agency will consider potential benefits to habitat,

education, recreation, and water quality when planning flood control channel maintenance and improvements.

IX. SUBCOMMITTEE MEETINGS AND WORKSHOPS

1. At least one representative from each agency will attend the Program's New Development workshops.

2. Each agency will chair the New Development Subcommittee on a rotating basis so that the burden of providing leadership is shared equitably.

3. Each agency will designate a person responsible for implementing the New Development, Redevelopment, and Construction Site Controls Component and for acting as a liaison with the New Development Subcommittee. This designated person will stay informed sufficiently to participate in New Development Subcommittee decisions and activities.

ILLICIT DISCHARGE CONTROLS

I. ILLICIT DISCHARGE CONTROL INSPECTION PROGRAM –

These performance standards apply to all agencies.

1. Each agency will prepare a written Five-Year Action Plan that demonstrates the agency's commitment to conducting effective investigation, tracking, and elimination of illicit discharges and describes the level of effort for conducting these activities. The Action Plan will demonstrate that the agency has:

    a. Identified, verified, and prioritized problem areas for investigation and/or repeat inspections.

    b. Defined priority for investigation of all areas within their jurisdiction.

    c. Demonstrated commitment to survey high priority areas annually.

    d. Defined frequency of survey for second and/or third priority areas, until the entire agency's drainage area has been inspected at least once during the five-year period of the Action Plan.

    e. Selected which agency or group will conduct the field surveys and estimated the number of labor hours required to implement the program. When more than one department is involved with conducting field surveys, determined how illicit discharge surveys and follow-up activities will be coordinated.

    f. Established how activities will be documented.

    g. Adopted the minimum enforcement procedures.

    h. Developed procedures for enforcement or referral to an outside agency, including appropriate time periods for action.

The Five-Year Action Plan will be submitted to the Regional Board by May 30, 2003.

2. Each agency will review annually and update as necessary its Five-Year Action Plan. The review will include an evaluation of field survey results from the previous year and an assessment of which types of non-stormwater discharges were most prevalent. Changes for the coming fiscal year will be submitted to the Regional Board by March 1.

3. Each agency will ensure that designated illicit discharge inspectors are trained. Agencies

will provide inspectors with the knowledge and skills necessary to conduct effective field investigations, with guidance from the Industrial & Illicit Discharge Control (I&IDC) Subcommittee and Regional Board staff.

4. Each agency will develop or obtain accurate maps of the agency's storm drain system including major drain segments, reaches, and outfalls within the agency's jurisdiction.

II. CONDUCTING FIELD INVESTIGATIONS

These performance standards apply to all agencies.

1. Each agency will conduct field investigations that include inspecting portions of the municipal storm drain system for potential sources of illicit discharges. Inspectors will:

    a. Survey priority areas as defined in the Five-Year Action Plan and make observations. Record observed or suspected dry weather flows.

    b. As possible, attempt to determine the type of flow and try to trace the flow to its source by following storm drain maps, inspecting manholes, and making surface observations. Record findings.

    c. If the responsible party is identified, educate the party on the impacts of his or her actions, explain the stormwater requirements, and provide BMPs. Initiate follow-up and/or enforcement procedures, if applicable. (Follow-up and enforcement activities are detailed further in Section III below.) Record activities.

2. Each agency will send at least one representative to General Program workshops to obtain additional training and share experiences with other agencies. The I&IDC Subcommittee will annually assess inspector training needs.

III. EVALUATING COMPLIANCE OF NON-STORMWATER DISCHARGER

These performance standards apply to all agencies.

Follow-up Activities

1. Each agency will continue inspection and follow-up activities until compliance is achieved. Record activities.

2. Agency staff will meet with the responsible party to discuss methods for eliminating the illicit discharge, including disposal options, recycling and possible discharge to the sanitary sewer, as appropriate. Provide ACCWP information to the responsible party. In the case of washwaters, refer to the incremental BMPs in *Recommended Discharge Elimination/Disposal Priorities for Washwaters* (September, 1994).

3. If the discharge is traced to a business, inspectors will coordinate information on the illicit discharge with the industrial/commercial discharge control program.

4. The appropriate agency will begin enforcement procedures, if necessary.

Enforcement

1. Agencies will conduct enforcement activities and report these activities as outlined in the *Protocol for Reporting Enforcement Activities* (*Protocols*). These activities are set forth by the individual municipality ordinances.

2. Agencies will provide inspectors with sufficient authority to initiate enforcement procedures.

IV. SPILL REPORTS/COMPLAINTS

These performance standards apply to all agencies.

Since a network of spill response and clean up programs already exists, establishing a new and separate stormwater response program would duplicate many of the services already being provided by these programs. The approach of the ACCWP illicit discharge control component is to supplement these services and respond to spill incidents that are not under the purview of previously existing clean-up programs. Within this context, each agency will implement the following performance standards.

1. Inspectors will investigate spill reports and/or complaints within their jurisdiction and record their activities.

2. Inspectors will become familiar with the existing spill response and clean-up programs that cover the agency's jurisdiction, and coordinate illicit discharge program activities with these existing programs.

3. Through internal communication and public education, agencies will encourage the use of "911" to report large or hazardous spills. If the use of "911" is not appropriate in a particular agency, establish and publicize an alternative telephone number for reporting spills.

4. Each agency will establish a mechanism for obtaining information about spill incidents so that source identification and follow-up actions can be conducted.

5. Each agency will identify an appropriate role for its participation in spill response drills, in cooperation with other agencies or industries.

V. DOCUMENTATION AND REPORTING

These performance standards apply to all agencies.

1. Each agency will summarize field investigations and follow-up activities using the Illicit Discharge Inspection Quarterly Summary Report form. These forms will be incorporated into the ACCWP's annual reports to the Regional Board.

2. Each agency will document the number and types of spill incidents reported and responded to within the agency's jurisdiction, based on direct calls, "911" dispatch records, referrals from the General Program, and other sources. (Agencies do not need to document automotive fluid spills for traffic accidents.) This information will be incorporated into the ACCWP's annual reports to the Regional Board.

3. Location of field investigations and incidents responded to must be tracked and recorded internally and be available for Regional Board staff review. This data does not need to be included in the ACCWP's annual reports to the Regional Board.

4. Each agency will describe training and coordination of staff involved with illicit discharges. This information will be incorporated into the ACCWP's annual reports to the Regional Board.

INDUSTRIAL AND COMMERCIAL DISCHARGE CONTROLS

I. INDUSTRIAL AND COMMERCIAL BUSINESS INSPECTION PROGRAM

These performance standards apply to all municipalities.

1. Each municipality will prepare a written five-year Inspection Plan that describes industrial and commercial sectors, as well as business inspection procedures and priorities. The five-year Inspection Plan will be submitted to the Regional Board by May 30, 2003.

2. Each municipality will prepare annually a written Inspection Workplan that outlines specific steps the municipality will take to conduct effective inspections in the following year. The Inspection Workplan will include:

    a. An evaluation of inspection results from the previous year to assess which industry types had the most impact on stormwater quality.

    b. An estimate of the number of facilities to be inspected in the coming fiscal year listed by type of business. If a business is being inspected due to geographical location, then it will be listed by geographical sector.

    c. An estimate of the number of high priority facilities that will be inspected in the coming fiscal year. The goal is to inspect the business community that has the potential to impact stormwater quality, at least once during the five-year permit period.

    d. As appropriate, a summary of efforts to coordinate inter/intra-agency issues.

    The Inspection Workplan for the coming fiscal year will be submitted to the Regional Board by March 1 of each year, except the FY 2003/4 workplan which will be submitted by May 30, 2003.

3. Each municipality will ensure facility inspectors are adequately trained. This includes the knowledge and skills necessary to conduct effective stormwater inspections, with direction from the Industrial & Illicit Discharge Control (I&IDC) Subcommittee. This may include: stormwater regulations and requirements (including the municipality's ordinance, municipal stormwater permit, and the industrial stormwater general permit); the impacts of non-stormwater discharges to the storm drains; inspection techniques and procedures; follow-up and enforcement procedures; and stormwater BMPs.

4. Each municipality will conduct outreach in addition to inspection activities, to inform facility representatives about appropriate stormwater BMP information. This may be satisfied by responding to telephone calls from business representatives, making presentations to business groups, or participating in focused outreach efforts coordinated by the I&IDC Subcommittee for targeted business groups.

5. Municipalities may coordinate outreach information with other ACCWP Subcommittees and other inspection programs.

II. INSPECTION ACTIVITIES

These performance standards apply to all agencies.

1. Each agency will respond to complaints or referrals concerning a facility. The response may include actions such as: interviewing the caller concerning the specific nature of the discharge; inspecting the site; locating any non-stormwater discharges to the storm drains; informing the facility representative of appropriate stormwater BMPs; and conducting follow-up measures to ensure compliance is achieved.

2. Each municipality will update their list of businesses from the following as appropriate: inter/intra-agency referrals; other agency and department lists; business licenses; water/utility bills; etc.

Preparing for the Site Visit

Inspectors will review existing information on the site and its regulatory history.

During the Site Visit

1. Inspectors will review the facility layout to locate the storm drain system and/or stormwater drainage path for storage areas, process areas, vehicle and heavy equipment wash and maintenance areas, and stormwater sampling locations, if applicable.

2. Inspectors will review/inspect the following areas for the potential to discharge pollutants from non-stormwater discharges or exposure to runoff. The areas that are inspected will depend on facility operations.

   a. Outdoor process/manufacturing areas;

   b. Outdoor material storage areas;

   c. Outdoor waste storage and disposal areas;

   d. Outdoor vehicle and heavy equipment storage and maintenance areas;

   e. Outdoor parking areas and

access roads;

f. Equipment on rooftops;

g. Outdoor wash areas;

h. Outdoor drainage from indoor areas; and

i. Stormwater conveyance system maintenance, and emergency response practices.

3. Inspectors will collect the information on the most recently adopted Standard Stormwater Facility Inspection Report Form.

4. Inspectors will use the facility's SWPPP, if available, as a tool in assessing the facility's stormwater pollution control activities. This will not imply review or approval of the adequacy of the SWPPP.

5. Inspectors will identify and inform the facility representative about problems and violation(s), if applicable. A schedule for correcting problems identified during the inspection and a means for verifying its implementation will be coordinated between the inspector and the facility representative. This information will also be noted on the inspection form.

6. Inspectors will provide facility representatives with appropriate BMP information, education materials, and inter/intra-agency referrals as appropriate.

7. Inspectors will obtain ongoing training to support inspection activities and to continue to improve program implementation. Inspector(s) representing each municipality will attend General Program inspector training workshops. The Industrial & Illicit Discharge Control Subcommittee will annually assess inspector training needs.

III. FACILITY COMPLIANCE EVALUATION

These performance standards apply to all agencies.

Repeat/Follow-up Inspection

1. The inspector will determine if the facility is in compliance with the municipality's stormwater ordinance (i.e., there are no unpermitted non-stormwater discharges and pollutant exposure to rain is minimized).

2. Inspectors will prioritize the facility for re-inspection. If a problem was identified during the inspection, inspectors will perform a follow-up inspection or initiate a self-certification process where the facility representative certifies in writing that the problem has been removed or corrected within the time specified by the inspector.

3. Inspectors will begin enforcement procedures as appropriate.

Enforcement

4. Agencies will conduct enforcement activities and report these activities as outlined in the *Protocol for Reporting Enforcement Activities*

adopted by the Industrial & Illicit Discharge Control Subcommittee and the Management Committee. These activities are set forth by the individual agency ordinances.

IV. DOCUMENTATION AND REPORTING

These performance standards apply to all agencies.

Each municipality will annually review inspection results and assess whether goals were met. The General Program will summarize inspection activity, follow-up activities, and enforcement action taken against businesses determined to be in non-compliance. This review will be incorporated into the Program's *Annual Report* to the Regional Board.

Notes

[1] Implement when State Board adopts a Construction Activity Stormwater NPDES General Permit for construction activities ≥ 1 acres.
[2] For projects that require a NOI, the SWPPP is equivalent to a Stormwater Quality Protection Plan.
[3] Approach and schedule to be submitted with the second *Annual Report* after permit adoption.

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SECTION 5

Approach and schedule to be submitted with the second *Annual Report* after permit adoption.

Implement when State Board adopts a Construction Activity Stormwater NPDES General Permit for construction activities ≥ 1 acres.

For projects that require a NOI, the SWPPP is equivalent to a Stormwater Quality Protection Plan.

Appendix A: Memorandum of Agreement

AGREEMENT

TO IMPLEMENT THE ALAMEDA COUNTY

URBAN RUNOFF CLEAN WATER PROGRAM

(Including First and Second Amendments)

AGREEMENT

PROVIDING FOR IMPLEMENTATION OF THE
ALAMEDA COUNTY URBAN RUNOFF CLEAN WATER PROGRAM

THIS AGREEMENT is made and entered into this day of , 1991 by and between the following undersigned public agencies, all which are referred to collectively as the Parties.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a public agency of the State of California;

Zone 7 of ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a local public agency of the State of California;

COUNTY OF ALAMEDA, a subdivision of the State of California;

CITY OF ALAMEDA, a municipal corporation of the State of California;

CITY OF ALBANY, a municipal corporation of the State of California;

CITY OF BERKELEY, a municipal corporation of the State of California;

CITY OF DUBLIN, a municipal corporation of the State of California;

CITY OF EMERYVILLE, a municipal corporation of the State of California;

CITY OF FREMONT, a municipal corporation of the State of California;

CITY OF HAYWARD, a municipal corporation of the State of California;

CITY OF LIVERMORE, a municipal corporation of the State of California;

CITY OF NEWARK, a municipal corporation of the State of California;

CITY OF OAKLAND, a municipal corporation of the State of California;

CITY OF PIEDMONT, a municipal corporation of the State of California;

CITY OF PLEASANTON, a municipal corporation of the State of California;

CITY OF SAN LEANDRO, a municipal corporation of the State of California; and CITY OF UNION CITY, a municipal corporation of the State of California.

RECITALS

A. The 1986 Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan), adopted by the Regional Water Quality Control Board in implementation of the Federal Clean Water Act, requires that the PARTIES develop a Program to control the discharge of pollutants from urban runoff.

B. In furtherance of their responsibilities pursuant to the Basin Plan, the PARTIES, have previously entered into a series of agreements to jointly fund the cost of preparing an action plan to evaluate nonpoint source pollutants, monitor identified pollutants and develop control measures to mitigate or reduce nonpoint sources of pollutants. Collectively, the measures undertaken pursuant to the previous agreements and anticipated to continue pursuant to this Agreement, are known as the Alameda County Urban Runoff Clean Water Program (hereinafter "Program"). The Program contains certain elements which provide a general benefit to the parties (such as monitoring, public education, program administration, etc.) and these elements of joint responsibility among the parties are termed the "General Program". In addition, the Program contains other elements which are an individual Party responsibility and which provide individual benefits (such as construction site controls, catch basin cleaning, and illicit and illegal connection

inspections, monitoring and enforcement), and these elements are termed the "Individual Programs". A description of the General and Individual Programs' elements, major tasks, schedules, and budgets will be developed as part of the "Work Plan for Cities in Alameda County, Alameda County, and the Alameda County Flood Control and Water Conservation District to file for a NPDES Permit" dated August 24, 1990.

C. The previous Agreements that have been executed are the following: The November 10, 1987 "Agreement Regarding Evaluation of the Non-Point Source of Water Pollution" and the October 17, 1989 "Agreement Regarding Implementation of Nonpoint Source Control Evaluation Program". In addition there is a pending agreement titled "Agreement Regarding Development of a Proposed Alameda County Nonpoint Source Control Management Plan" which will provide funding through June 1991 for implementation of the August 24, 1990 work plan.

D. The PARTIES desire to continue the Program and to enter into this Agreement for the purpose of ensuring continued participation, in terms of cost and administrative responsibilities.

E. This Agreement does not amend or supersede any prior agreement among the PARTIES regarding the Program, but is to be read as in accord with and

implementation thereof.

F. The Alameda County Flood Control and Water Conservation District (District) is a local public agency of the State of California duly organized and existing and empowered to conserve water and to provide maintenance and flood control management of the water courses and has the authority to control the discharge of surface waters to its facilities. The County of Alameda and all of the cities therein are subdivisions of the State with authority to control the discharge of surface waters from their respective jurisdictions.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. A Management Committee is hereby created to provide overall program direction, review and recommend an annual budget for approval by the PARTIES, and budget oversight, all in accordance with the Alameda County Urban Runoff Clean Water Program. Management Committee members, and their alternates, shall be appointed by the City Manager or the equivalent of the respective Parties and a confirming letter sent to the authorized representative of the District. The Management Committee shall adopt bylaws for its governance.

(a) Each Party to this agreement is allocated the number (or fraction thereof) of votes shown in Exhibit A. This allocation of voting strength is based on the formulas stated in Exhibit B to the Agreement.

(b) A quorum for the conduct of business by the Management Committee shall be a majority of the voting Parties to the Agreement. The voting strength allocated to a Party shall not be considered in the determination of a quorum.

(c) Approval of actions by the Management Committee shall require a two-thirds affirmative vote of all allocated votes as shown in Exhibit A.

No action shall be taken by the District which requires expenditures by any party other than the District without prior Management Committee approval.

2. Pursuant to direction of the Management Committee, the District shall administer and coordinate the Program, which duties include but are not limited to:

(a) Reapplying on behalf of the PARTIES to become co-applicants for a National Pollutant Discharge Elimination System (NPDES) permit;

(b) Preparing draft annual budget and, periodic status reports on Program activities and expenditure and distributing same to PARTIES at least annually;

(c) Consolidating and submitting reports prepared by the several PARTIES required by the NPDES permit;

(d) Letting and administering approved consultant contracts according to District policies and procedures and considering other members' requirements. All consultant contracts will contain hold harmless and indemnity provisions and insurance requirements for the benefit of all PARTIES;

(e) Conducting audits of consultant contracts in accordance with District policies and procedures;

(f) Maintaining knowledge of and advising the PARTIES regarding current and proposed state and federal policies, regulations and programs that impact nonpoint source pollutant control programs; assisting the PARTIES in development and presentation of positions on these issues before local, State, and Federal agencies;

(g) Preparing an annual report on the implementation of the Program;

(h) Representing the PARTIES in participation in the Bay Area Stormwater Management Agencies Association; and

(i) Formally advising the appropriate State and Federal agencies of termination or amendment of this Agreement.

3. The PARTIES accept and agree to perform the following duties:

(a) Each will authorize a representative to reapply for an NPDES permit as co-applicants with the other Parties;

(b) Each will fully comply with the NPDES permit conditions applicable to its Individual Program and its identified portion of the General Program;

(c) Each will select a representative and an alternate to participate in Management Committee meetings and other required meetings of the PARTIES;

(d) Each will fund and implement its own Individual Program, and will fund and implement its share of the General Program. The District intends to provide funding to support new and expanded activities required by the General and Individual Programs for Cities locate in District zones with Benefit Assessment Programs. Such funding will be provided to the extent that it is available and with the concurrence of the applicable City if it results in deferring flood control projects.

(e) Each will provide agreed upon reports (certified under penalty of perjury) to the District on compliance with applicable provisions of the NPDES permit and program implementation.

4. A proper accounting of funds and reports of all receipts and disbursements shall be made, including funds disbursed to individual parties for implementation of permit programs. Upon completion of the purposes of this Agreement, any surplus money on hand shall be returned in proportion to the

contributions made. In the event a Party terminates this Agreement, any unexpended portion of its share of cost funds shall be returned to it.

5. By agreement of the PARTIES, budget allocations and voting shares for the General Program shall be made according to a formula which for the municipalities allocates proportional shares based on a 50 percent weight given to the area and a 50 percent weight given to the population within each municipalities' jurisdiction (excluding open water and wetland areas of San Francisco Bay). The attached Exhibit B provides a copy of the formulas which are used to allocate costs. Each Parties' share of the General Program's costs for fiscal year 1991/92 will be according to the percentages provided in Exhibit A. Cost shares will be recalculated based on updated information on population and area using the formulas in Exhibit B for fiscal year 1992/93 and at appropriate future intervals as specified in the bylaws. The budget allocation for the Individual Programs shall be made directly by the individual responsible parties.

6. This Agreement shall have a term of six (6) years from the first day of April 1991, subject to automatic renewal for a five (5) year period in the absence of objection thereto made in writing by any Party 90 days in advance of the renewal date. This Agreement shall have an additional term of six (6) years from the first day of April 2002, subject to an additional automatic renewal for a five (5) year period in the absence of objection thereto made in writing by any Party 180 days in advance of the renewal date. The participation of any Party to this Agreement may be terminated by a two-thirds affirmative vote of all allocated votes in any year in which the funds necessary for its continued involvement are not appropriated by its legislative body.

7. The PARTIES shall retain the ability to individually (or collectively) request permit modifications and initiate permit appeals for permit provisions to the extent that a provision affects an individual party or group of PARTIES.

8. This agreement may be amended from time to time by written agreement of the Parties' governing bodies representing two-thirds or more of all allocated votes as shown in Exhibit A.

9. Participation in this Agreement may be terminated by any Party for any reason after the Party complies with all of the conditions of termination. The conditions of termination include the following: the Party shall notify all of the other Parties to the Agreement 90 days prior to its termination in the Agreement, the Party shall obtain its own NPDES permit for urban runoff, and the Party shall have its name deleted as a co-permittee of the Parties' NPDES permit. Any expenses associated with terminating the Agreement including but not limited to filing for and obtaining the individual NPDES permit and the amendment of the Parties' NPDES permit will be solely the responsibility of the Party terminating its participation in the Agreement.

10. It is understood and agreed that, pursuant to Government Code 895.4, each Party ("indemnitor") shall, to the extent permitted by law, defend, indemnify and save harmless each other Party, and its officers and employees from all claims, suits or actions of every name, kind and description resulting from indemnitor's performance of this Agreement, excluding any injuries, death, damage or liability resulting from the negligence or willful misconduct of the other Parties or their officers or employees.

Appendix B: General Program Tasks and Budget for FY 2001/02

Program Component	FY 2001/02 Budget
Planning and Regulatory Compliance	$519,000

FY 2001/02 General Program Budget Summary

Watershed Assessment	$151,000
Monitoring and Special Studies	$448,000
Public Information/Participation	$555,000
Municipal Maintenance Activities	$88,000
New Development and Construction Site Controls	$82,000
Illicit Discharge Controls	$46,000
Industrial and Commercial Discharge Controls	$124,000
Contingency	$87,000
BUDGET TOTAL	**$2,100,000**

Planning and Regulatory Compliance General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
PRC-1. Participate in the Regulatory Process:		$99,000	
• Review and comment on legislation and regulation affecting stormwater management. Confer with Regional board on permit reissuance. (Includes all legal assistance to the Program.)	Previously funded under Task 2.3 (Respond to Regulatory Initiatives).	($59,000)	Ongoing
• Represent Program in TMDL and permit processes and on BASMAA and California Stormwater Quality Task Force.	Previously part of Task 2.2 (Lead and Represent).	($40,000)	Ongoing
PRC-2. Assist with Permit Compliance:		$87,000	Ongoing
• Develop deliverable forms. Compile and submit required reports to Regional Board.	Previously funded under Task 2.1 (Assist with Compliance).	($52,000)	
• Review member agencies' performance and provide additional assistance with permit compliance.	Previously funded under Task 2.4 (Continuous Improvement).	($35,000)	
PRC 3 & 4. Develop Partnerships and Facilitate Watershed Approach:		$40,000	Ongoing
• The purpose of this task is to expand upon existing partnerships and to pursue opportunities to create additional partnerships.	Previously part of Task 2.2 (Lead and Represent).	($15,000)	
• The purpose of this task is to coordinate the Program's involvement in watershed management activities.	Funding transferred from Watershed Assessment component.	($25,000)	
PRC 5. Control Measure Plans:		$50,000	Ongoing
• Implement the planning component tasks of the Control Measure Plans and coordinate the implementation and updating of Control Measure Plans	$22,000 from Task 2.2 (Lead and Represent); $28,000 in additional funding.		
PRC 6. Planning and Evaluation:		$57,000	Ongoing
• Program planning, coordination and evaluation.	Previously funded under Task 2.5.1.	($20,000)	
• Newsletter and website.	Previously funded under Task 2.6 (Website and Newsletter).	($37,000)	
PRC 7. Management Services		$101,000	Ongoing
• Program management, budgeting, contracting, accounting, and reporting.	Previously funded under Task 2.5.2 (Management Services	($61,000)	
• Facilitate Management and Policy Level Subcommittee meetings and project management.	Previously funded under Task 2.5.1	(40,000)	
PRC 8. Fees and Dues:		$85,000	

Planning and Regulatory Compliance General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
• Annual NPDES Permit Fee. • BASMAA and California SWQTF contributions		($10,000) ($75,000)	
Total Budget		$519,000	

Watershed Assessment General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
WA-1. Develop and maintain a GIS resource for watershed information: • Continue mapping of pilot watersheds, and fill high-priority data needs such as digital conversion of available data or maps. Priorities and map projects to be developed in consultation with the local co-permittees or other watershed partners, and in coordination with other regional efforts. • Develop framework for long-term inventory of other Alameda County watersheds. Identify needs and priorities for incorporating data.	These tasks are all based on the Draft SWQMP, and support Objective #1 of the BASMAA Regional Monitoring Strategy.	$55,000 ($45,000) ($10,000)	Ongoing Target completion January 2002
WA-2. Use a variety of indicators to assess the condition of streams and watersheds: • Coordinate development of creek indicators (macroinvertebrate community, flow or imperviousness) with the proposed Stream Protection Policy and other regional initiatives. • Provide resources and training to citizen monitoring groups that are working with local watershed partners. May use services for training and technical assistance provided by Watershed Assessment Resource Center or other regional information sources.		$30,000 ($15,000) ($15,000)	Ongoing
WA-3. Provide useful watershed information to the Program and other watershed stakeholders: • Continue testing and application of selected indicators for contact recreation and human health risk (e.g. microbiological, chemical); provide tools and guidance to co-permittees and other local managers. • Conduct local pilot projects or assist member agencies in conducting watershed inventory and planning. • Prepare watershed maps and other creek information for display on ACCWP website.		$56,000 ($16,000) ($30,000) ($10,000)	Ongoing
WA-4. Reporting and component management: • Develop budgets, manage projects, compile reports, and evaluate component activities.		$10,000	Ongoing
Total Budget		$151,000	

Monitoring and Special Studies General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
MS-1. Characterize and track pollutants of concern in urban runoff:	These tasks are based on the Draft SWQMP, and support Objective #2 of the BASMAA Regional Monitoring Strategy.	$267,000	Ongoing
• Required contribution to Regional Monitoring Program for Trace Substances.	An anticipated increase in the annual RMP fee has been estimated at 10% for calendar year 2002.	($147,000)	
• Continue sediment sampling for Mercury, PCB and organochlorine pesticides, and investigate potential sources in high priority watersheds as requested by Regional Board staff to support TMDL development.	One-time allocation for review of past data and preparation of long-term plan, to be updated after several years of sampling.	($50,000)	
• Review past Program fixed-station sampling data and develop statistically sound design for long-term monitoring plan to track metals, pesticides and toxicity.		($30,000)	
• Conduct stormwater monitoring in accordance with long-term plan.		($15,000)	
• Refine database of past sampling data; incorporate additional data types and develop queries or other user interfaces to facilitate analysis of long-term trends.		($25,000)	
MS-2. Evaluate the effectiveness of urban runoff BMPs:	These tasks are based on the Draft SWQMP, and support Objective #3 of the BASMAA Regional Monitoring Strategy.	$75,000	Ongoing
• Conduct special studies focusing on TMDL priority pollutants and their sources. These studies may include: planning of data collection for future TMDLs; local source identification; identification or refinement of specific control measures.		($35,000)	
• Conduct studies to assist establishment of local design standards for treatment and retention of runoff from new developments and redevelopment areas, similar to the SUSWMP requirements being discussed in relation to Santa Clara's NPDES permit renewal.	ACCWP's next NPDES permit is likely to include similar requirements, pursuant to recent "Bellflower" decision.	($40,000)	
MS-3. Provide technical information on management issues involving urban runoff:	These tasks support stormwater management and pollution prevention by co-permittees	$37,000	Ongoing
• Conduct special studies to address data gaps or management issues concerning pollutants of concern and urban runoff impacts.		($27,000)	
• Provide miscellaneous technical on-call support as needed.		($10,000)	

Monitoring and Special Studies General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
MS-4. Coordinate with RMP and BASMAA: • Participate in BASMAA Monitoring Committee, RMP technical review, other regional stakeholder discussions.		$24,000	Ongoing
MS-5. Reporting and component management: • Facilitate and support Watershed Assessment and Monitoring Subcommittee. • Develop component budgets, track expenditures, conduct special studies needs assessment, evaluate component activities and manage component tasks.		$45,000 ($20,000) ($25,000)	Ongoing
Total Budget		$448,000	

Public Information/Participation General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
PI/P 1. Implement targeted outreach:		$205,000	Ongoing
• Targeted campaigns will focus on helping to implement the control measure plans for specific water quality impairing pollutants. The pollutants that appear to be priorities on the Regional Board's list include mercury, PCBs and dioxin compounds, and pesticides. The campaigns will focus primarily on targeting residential usage and encouraging residents to prevent pollution.	Regional Advertising Campaign	($100,000)	
	Local Placement of Advertising	($95,000)	
	Collaboration with BASMAA and others	($10,000)	
PI/P 2. Continue to reinforce storm water messages:		$41,000	Ongoing
• This task supports reinforcing general and specific storm water messages.	IPM partnership	($21,000)	
	Media Relations	($10,000)	
	Outreach Events	($10,000)	
PI/P 3. Support educational and watershed-based approaches:		$170,000	Ongoing
• This task will provide support for programs that educate students about stormwater pollution (for example, Bay Savers, Kids in Creeks, or Estuary Action Challenge), the Community Stewardship Grants program, and outreach events such as the *Watershed Symposium*.	Bay Savers	($56,000)	
	Aquatic Outreach Institute	($70,000)	
	Estuary Action	($15,000)	
	Community Stewardship	($17,500)	
	Symposium	($10,000)	
	BAEER Fair	($2,500)	
PI/P 4. Support municipalities:		$74,000	Ongoing
• This task includes: developing and obtaining promotional materials for use by the municipalities; updating, reprinting, and distributing existing ACCWP materials; and, responding to requests for information from the public and member agencies.	Materials	($50,000)	
	Support	($24,000)	
PI/P 5. Component management and evaluation:		$67,000	Ongoing
• This task includes: subcommittee support, component evaluation, task management, and the development of work plans and budgets.	Subcommittee Support $20,000	($20,000)	
	Component Evaluation $7,000	($7,000)	
	Component Management $40,000	($40,000)	
Total Budget		$555,000	

Municipal Maintenance Activities General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
MN-1. Implement and Assist with Performance Standards: • Each agency will implement the performance standards for municipal maintenance activities. The performance standards include the following major activities: – Street Sweeping – Storm Drain Cleaning – Conducting Training – Reporting The General Program will work through the Maintenance Subcommittee to resolve implementation and consistency issues.	Performance standards are the primary method for implementing the SWMP and complying with requirements of the NPDES permit.	$15,000	Ongoing
MN-2. Coordinating Maintenance-Related Activities with Other Subcommittees of the ACCWP, Other Agencies and Private Industries: • The subcommittee will work with appropriate staff from other Subcommittees of the ACCWP, park and recreation departments, and other public agencies and private industries whose activities are similar to or potentially affect municipal maintenance activities to identify activities of concern. Examples of other public agencies and private industries include PG&E, water suppliers and utilities, garbage collection companies, the Port of Oakland, golf courses, private recreational facilities and animal confinement areas. private recreational facilities and construction contractors.	Coordination among agencies and industries whose activities affect municipal maintenance will result in greater efficiency and effectiveness in meeting this component's goals.	$15,000	Ongoing
MN-3. Optimize Data Management and Analysis: • The General Program will optimize ongoing collection, recording and analysis of maintenance data. This will include continuing to evaluate if the types of maintenance data being collected are useful and if other types of data should be collected. Examples of potential studies and data analysis include the following: – Leaf collection programs – Litter abatement programs.	This task is based on the SWMP.	$15,000	Ongoing
MN-4. Outreach and Training: • The General Program will facilitate outreach and training activities aimed at preventing discharges from maintenance activities, with direction from the Maintenance Subcommittee. This includes selecting the appropriate forum (e.g., workshops, round table meetings, work groups, inter/intra-agency coordination meetings, etc.) depending on the target audiences (e.g., ACCWP agencies, other agencies, property owners, residence, etc.). • The Maintenance Subcommittee will also coordinate outreach activities with	Outreach activities will educate maintenance staff and the public about the ACCWP's goals related to municipal maintenance and provide information on how the public can help the municipalities achieve these goals.	$33,000	Ongoing

Municipal Maintenance Activities General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rationale/Background (if necessary)	Budget	Schedule/ Due Date
other ACCWP Subcommittees when the objectives of a planned outreach and training activity conducted by the Maintenance Subcommittee overlap with the objectives of another Subcommittee.			
MN-5. Manage Component and Evaluate and Improve Its Effectiveness: • The General Program will assist the Maintenance Subcommittee and its workgroups to conduct meetings and prepare any needed NPDES permit reports and work plans related to this component. This includes assisting with the development of annual General Program budgets. The following activities are examples of how the effectiveness of this component may be evaluated: – Survey member public agencies to obtain information about how well this component and the performance standards are working. – Evaluate the information being submitted as part of the annual reports. – Evaluate the Regional Board staff's reviews of the Clean Water Program's performance in this area.	This task is based on the SWMP.	$10,000	Ongoing
Total Budget		$88,000	

New Development and Construction Site Controls General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rational/Background (if necessary)	Budget	Schedule/ Due Date
ND-1. Identify More Specific Stormwater Controls for New Development: • Identify and work with a stakeholder group to develop a method for integrating pollutant and hydromodification controls. Submit method to Regional Board staff and make changes based on their feedback. • Identify assistance needed by ACCWP agencies to implement these controls.	This task is based on the SWMP and Regional Board interest in more directly specifying how treatment, hydromodification, source and design controls, will be used.	$18,000	06-30-2002 Ongoing
ND-2. Assist with Implementation of More Specific Stormwater Controls: • Perform activities identified by New Development Subcommittee as helpful to implementation of the new, more specific controls such as: incorporate the controls into performance standards; develop revised Conditions of Approval and other planning materials; provide information on successful development/redevelopment projects employing the controls and information on cost-effective ways to implement the controls; and assist with implementation of any new development control measures related to a specific pollutant.	This task is based on the SWMP and municipal planning staff's need to implement treatment, hydromodification, source and design controls.	$18,000	Ongoing
ND-3. Assist Development and Facilitate Use of Watershed Information: • Identify watershed information needs related to New Development. Communicate these needs to the Watershed Monitoring and Management Subcommittee. • Facilitate municipal planning and engineering staff's use of this information as it becomes available.	This task is based on the SWMP and the ACCWP's emphasis on watershed management.	$3,000 ($1,000) ($2,000)	Ongoing
ND-4. Promote Outreach and Training: • Conduct one outreach and/or training event to a target group (agency staff or building industry) chosen by the New Development Subcommittee. • Develop and distribute outreach materials with direction from New Development Subcommittee. Compile and distribute guidance and educational material to agency staff.	This task is based on the SWMP. The focus of training and outreach materials will be on the specific pollutant and hydromodification controls developed in Task 7.1.	$18,000 ($10,000) ($8,000)	06-30-2002

New Development and Construction Site Controls General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rational/Background (if necessary)	Budget	Schedule/ Due Date
ND-5. Assist with NPDES Permit Requirements, Reports, and Budgets: • Provide support for monthly New Development Subcommittee meetings and any needed work group meetings. Prepare reports, budgets, and other items to assist with implementation and documentation of this component. Evaluate effectiveness of this component so that the New Development Subcommittee can make improvements to the General Program.	This task is based on the SWMP and the ACCWP desire to implement a process of continuous improvement.	$25,000	Ongoing
Total Budget		$82,000	

Illicit Discharge Controls General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rational/Background (if necessary)	Budget	Schedule/ Due Date
ID-1. Implement and Assist with Performance Standards: • Provide input and direction on the next Stormwater Management Plan and permit application based on comments from the I&IDC Subcommittee.[1] Review component performance standards and update as needed.	This task is based on the SWMP. Performance standards are reviewed annually, and updated as necessary.	$1,000	Ongoing 01-01-2002
ID-2. Assist Member Agencies Comply with Requirements for Conditionally Exempt Non-Stormwater Discharges: • Facilitate compliance with conditionally exempt non-stormwater discharges. Work with the I&IDC Subcommittee to identify effective control measures. Facilitate process for adding new conditionally exempt non-stormwater discharges and developing appropriate BMPs.	This task is based on the SWMP, the municipal stormwater NPDES permit, and "Table 5. Summary of Conditionally Exempt Discharges, Follow-up, and Schedule" of the ACCWP *1997/98 Annual Report*.	$7,000	09-15-2002
ID-3. Track and Analyze Non-Stormwater Discharge Reports: • Collect and analyze information on illicit discharge control activities reported in the ACCWP agencies' quarterly summary reports. Analyze information to detect trends and to improve planning and management of illicit discharge control program activities, with direction from the I&IDC Subcommittee.	This task is based on the SWMP and the municipal stormwater NPDES permit.	$20,000	03-15-2002 & 09-15-2002
ID-4. Conduct Outreach and Training: • Facilitate outreach and training activities to prevent illicit discharges, with direction from the I&IDC Subcommittee. Develop materials to support outreach and training activities. • Identify a target audience and select appropriate outreach activity at least once every two years.	This task is based on the SWMP.	$12,000 ($2000) ($10,000)	07-01-2002
ID-5. Manage Component and Evaluate and Improve Its Effectiveness: • Assist I&IDC Subcommittee and its workgroups to conduct meetings and prepare NPDES permit reports, work plans and associated budgets related to this component.	This task is based on the SWMP. All agencies will submit their action plan using the same form to help ensure the information reported is consistent countywide.	$6,000	12-15-2001 03-15-2002 & 09-15-2002
Total Budget		$46,000	

[1] The majority of the budget for I&IDC Subcommittee coordination of illicit discharge control consistency issues is included in Task 9.2.

Industrial and Commercial Discharge Controls General Program Work Plan and Budget - FY 2001/02

Task Number and Description	Rational/Background (if necessary)	Budget	Schedule/ Due Date
ICD-1. Assist with the Implementation of Business Inspections, Enforcement and Educational Outreach Activities: • Assist Agencies to implement business inspections and related performance standards and encourage Program-wide consistency under the auspices of the Industrial/Commercial & Illicit Discharge Control (I&IDC) Subcommittee and its work groups. • Review performance standards and make improvements on a biannual or more frequent basis.	This task is based on SWMP. *Illicit Discharge Control Program coordination is incorporated into this budget.*	$45,000	Ongoing 06-30-2003
ICD-2. Develop BMP Guidance Materials: • Identify target audiences and which format to use for materials under the direction of the Industrial/Commercial & Illicit Discharge Control Subcommittee. Produce materials.	This task is based on SWMP. Guidance materials will support both illicit discharge control and industrial/commercial discharge control activities.	18,000	Ongoing
ICD-3. Track and Analyze Facility Inspection Reports: • Collect and analyze facility inspection report forms. Discuss findings with and perform additional analysis at the request of the Industrial/Commercial & Illicit Discharge Control Subcommittee.	This task is based on SWMP.	$20,000	Ongoing
ICD-4. Conduct Outreach and Training: • Identify a target audience (agency, business groups or industrial/ commercial associations), select appropriate forum for outreach under the direction of the Industrial/Commercial & Illicit Discharge Control Subcommittee. Conduct outreach or training activity(s) on a biannual or more frequent basis. When common objectives exist, coordinate training or outreach events with other General Program subcommittees.	This task is based on the SWMP.	$15,000	06-30-2003
ICD-5. Assist with NPDES Permit Requirements, Reports, Budgets and Evaluation of Industrial Discharge Control Activities: • Support the meetings of the Industrial/Commercial & Illicit Discharge Control Subcommittee and work groups. Prepare reports, budgets and other items necessary for administering this component and ensuring NPDES Permit compliance. Evaluate effectiveness of component through business surveys, analysis of agency annual report submittals and Regional Board staff's reviews. Based on evaluation, suggest policy and procedure improvements.	This task is based on the SWMP.	26,000	Ongoing
Total Budget		$124,000	

Appendix C: Pollutant Reduction Plans

Table C1- Diazinon Pollutant Reduction Plan: FYs 2001/02 and 2002/03

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted by:
Municipal Activities			
MA-1: Survey agency use of insecticides	1) Conduct survey of insecticide use by municipal employees or contractors. 2) Assess results of survey and develop a plan to minimize the potential for municipal use of insecticides to impact storm water quality. 3) Begin implementation of recommended activities	1) FY 01/02 2) FY 01/02 3) FY 01/02	1) Municipalities/ Program 2) Municipalities/ Program 3) Municipalities
MA-2: Train municipal employees who use insecticides about insecticide-related surface water toxicity, proper use and disposal of insecticides, and less-toxic methods of prevention and control.	1) Conduct survey of established training requirements for municipal employees who use insecticides. Report on results. 2) Assess results of survey and develop a plan to augment existing training activities. 3) Implement training activities	1) FY 01/02 2) FY 01/02 3) FY 01/02	1) Municipalities/ Program 2) Planning Comp. 3) Municipalities/ Planning Comp.
MA-3: Integrated Pest Management (IPM) practices, policies, or ordinances.	1) Review established IPM practices, policies, or ordinances. Determine if additional practices, policies or ordinances should be developed. Submit written report on findings and recommended actions to Regional Board. 2) Compile examples of IPM practices, policies, and ordinances and provide to member agencies. Assist member agencies with implementation as appropriate. 3) Implement recommendations from Task 1.	1) FY 01/02 2) FY 01/02 3) FY 01/02	1) Municipalities/ Program 2) Planning Comp. 3) Municipalities

Table C1- Diazinon Pollutant Reduction Plan: FYs 2001/02 and 2002/03

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted by:
Outreach			
OR-1 Outreach to Residents: Continue to develop and distribute information to the general public on pesticide-related toxicity, proper use and disposal of pesticides, and less-toxic methods of pest prevention and pest control.	1) Support "Our Water, Our World" point of purchase campaign. 2) Develop distribution plan for insecticide related outreach materials. 3) Implement distribution plan	1) FY 01/02 2) FY 01/02 3) FY 01/02	1) PI/P Comp. 2) Municipalities and PI/P Comp. 3) Municipalities and PI/P Comp.
OR-2 Outreach to Commercial Facilities: Provide information to selected businesses (e.g., restaurants, and supermarkets) about insecticide-related surface water toxicity, proper use and disposal of insecticides, and less-toxic methods of prevention and control.	1) Select business sector and develop or adopt outreach material 2) Distribute Material in conjunction with Industrial/Commercial Inspection Program	1) FY 01/02 2) FY 02/03	1) II&ID Comp. / Planning Comp. 2) Municipalities
Develop Partnerships			
DP-1 PCOs: The Program will contact licensed applicators in the county, and will work with those who are willing, to set up a program to minimize water quality impacts from structural pest control applications.	1) Contact licensed applicators and coordinate development of IPM approach 2) Begin implementation of IPM approach	1) FY 01/02 2) FY 02/03	1) Planning Comp. 2) Planning Comp.
DP-2 HHW facilities: Continue to support and promote household hazardous waste collection as an important insecticide disposal option for residents.	1) HHW info on P^2 Outreach material. 2) Conduct meeting(s) with HHW staff to discuss additional opportunities for coordination. 3) Begin Implementation of activities developed in Task 2.	1) Ongoing 2) FY 01/02 3) FY 01/02	1) PI/P Comp. 2) Planning Comp. 3) Program or municipalities as appropriate
DP-3 Agricultural Commission:	1) Conduct meeting(s) with County Agriculture staff to coordinate development of outreach for PCOs.	1) FY 01/02	1) Planning Comp.

Table C1- Diazinon Pollutant Reduction Plan: FYs 2001/02 and 2002/03

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted By
Monitoring			
M-1: Use monitoring and science to investigate local impacts and sources.	1) Develop insecticide application/runoff model. 2) Track long term trends in storm water toxicity and insecticide concentrations (will be included in long-term monitoring plan)	1) FY 01/02 2) Ongoing	1) Monitoring Comp. 2) Monitoring Comp.
Regulatory			
R-1: Participate in the pesticide regulatory processes as appropriate.	1) Provide written comments to Regional Board, U.S. EPA and California Department of Pesticide Regulation as appropriate. 2) Provide monitoring data to Regional Board, U.S. EPA and California Department of Pesticide Regulation as appropriate.	1) Ongoing 2) Ongoing	1) Planning Comp. 2) Monitoring Comp.
Coordination			
C-1: Coordinate implementation of the PRP.	1) Establish work group to coordinate implementation across components, develop reporting forms and assist municipalities. 2) Coordinate with BASMAA, the California Storm Water Quality Task Force and the Urban Pesticide Committee as appropriate.	1) Ongoing 2) Ongoing	1) Planning Comp. 2) Planning Comp.
Evaluation			
V-1: Evaluate implementation of the PRP	1) Review each of the action items and develop and conduct evaluations as appropriate. 2) Report on the results of the evaluations to the Regional Board	1. Annually 2. Annually	1. Planning Comp. 2. Planning Comp.

Table C2- Mercury Pollutant Reduction Plan: FYs 2001/2, 2002/3 and 2003/4

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted by:
Municipal Activities			
MA1 Fluorescent Bulb Recycling	1) Conduct survey of fluorescent bulb recycling practices currently employed by municipalities. 2) Assess potential for improvement in recycling practices. 3) Implement improved practices	1) FY 02/03 2) FY 02/03 3) FY 03/04	1) Municipalities 2) Municipalities 3) Municipalities
MA2- Mercury Reduction Policies/Ordinances	1) Assess feasibility of implementing purchasing policies to reduce the use of mercury containing products. 2) Implement activities from assessment as appropriate.	1) FY 02/03 . 2) FY 03/04	1) Municipalities 2) Municipalities
Outreach			
OR1- Outreach to Businesses: Work with business community to increase level of fluorescent lamp recycling.	1) Identify obstacles to increased fluorescent lamp recycling. 2) Work with appropriate entities to try to minimize obstacles.	1) FY 02/03 2) FY 02/03	1) Planning Comp. 2) Planning Comp.
OR2- Outreach to Residents: Develop and distribute information to the general public on mercury related hazards, proper use and disposal of mercury containing products, and mercury free alternatives.	1) Develop mercury related outreach program 2) Conduct public outreach	1) FY 02/03 2) FY 03/04	1) PI/P Comp. 2) PI/P Comp. and/or Municipalities
Partner with Other Agencies			
P1- Household Hazardous Waste: Continue to support and promote household hazardous waste collection as a mercury disposal option for residents.	1) HHW info on P^2 Outreach material. 2) Conduct meeting(s) with HHW staff to discuss opportunities for coordination. 3) Begin implementation of activities developed in Task 2.	1) Ongoing 2) FY 01/02 3) FY 02/03	1) PI/P Comp. 2) Planning Comp. 3) Program or municipalities as appropriate

Table C2- Mercury Pollutant Reduction Plan: FYs 2001/2, 2002/3 and 2003/4

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted by:
P2- Green Business Program:	1) Evaluate funding Green Business Program 2) Assess potential for improving Green Business Program's fluorescent bulb recycling component 3) Promote Program's and municipalities' use of Green Businesses 4) Promote public's use of Green Businesses	1) FY 01/02 & 02/03 2) FY 01/02 3) Starting 02/03 4) Starting 02/03	1) II&ID Comp. 2) II&ID Comp. 3) Planning Comp. and Municipalities 4) PI/P
Regulatory Involvement			
R1: Participate in the mercury TMDL process.	1) Attend mercury TMDL meetings as appropriate. 2) Provide written comments to U.S. EPA and the Regional Board as appropriate. 3) Support legislation to reduce mercury use.	1) Ongoing 2) Ongoing 3) Ongoing	1) Planning Comp. 2) Planning Comp 3) Planning Comp
R2: Fluorescent Bulb Recycling	1) Encourage the Department of Toxic Substances Control to promote recycling of fluorescent bulbs through revisions to Universal Waste Rule.	1) Ongoing	1) Planning Comp.
Monitoring			
M1: Use monitoring and science to investigate local impacts and sources.	1) Conduct survey of stream sediments to assess concentrations and loading of mercury. 2) Conduct additional surveys or special studies as appropriate.	1) FY 01/02 2) As appropriate	1) Monitoring Comp. 2) Monitoring Comp.
Coordination and Evaluation			
CE1: Coordinate implementation of the mercury PRP.	1) Coordinate implementation across components. 2) Coordinate with BASMAA, the Regional Board, and U.S. EPA as appropriate.	1) Ongoing	1) Planning Comp.
CE2: Evaluate implementation of the mercury PRP	1) Review each of the action items and develop and conduct evaluations as appropriate. 2) Report on the results of the evaluations to the Regional Board	1) Annually 2) Annually	1) Planning Comp. 2) Planning Comp.

Table C3- Copper Pollutant Reduction Plan: FYs 2001/2 and 2002/3

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

Area of Activity	Specific Tasks	Schedule	Conducted by:
Brake Pad Partnership			
B-1: Brake Pad Partnership	1) Contribute funds to support Brake Pad Partnership effort.	1) FY 01/02 & 02/03	1) Planning Comp.
Municipal Activities			
MA1: Architectural uses of copper	1) Assess feasibility and effectiveness of reducing the use of copper in roofs or gutters. 2) Implement actions based on results of assessment.	1) FY 01/02 2) FY 02/03	1) New Development and Monitoring Comp. 2) Municipalities
MA2: Street Sweeping	1) Continue street sweeping in accordance with Municipal Maintenance Performance Standard.	1) Ongoing	1) Municipalities.
MA3- Outreach to Businesses: Conduct outreach to selected business sector (e.g., metal finishers, pool maintenance, auto repair) regarding BMPs to reduce copper discharge.	1) Select Business Sector and Develop Outreach 2) Distribute material in conjunction with Industrial/Commercial inspection program	1) FY 02/03 2) FY 03/04	1) II&ID Comp. 2) Municipalities
Monitoring			
M-1: Use monitoring and science to investigate local impacts and sources.	1) Track long term trends for copper concentrations in storm water. (Will be included in long-term monitoring plan.) 2) Conduct special studies as appropriate	1) Ongoing 2) As appropriate	1) Monitoring Comp. 2) Monitoring Comp.
Coordination			
C-1: Coordinate implementation of the CMP.	1) Coordinate implementation across components. 2) Coordinate with BASMAA, the Brake Pad Partnership, and others as appropriate.	1) Ongoing 2) Ongoing	1) Planning Comp. 2) Planning Comp.
Evaluation			
V-1: Evaluate implementation of the CMP	1) review each of the action items and develop and conduct evaluations as appropriate. 2) report on the results of the evaluations to the Regional Board	1) Annually 2) Annually	1) Planning Comp. 2) Planing Comp.

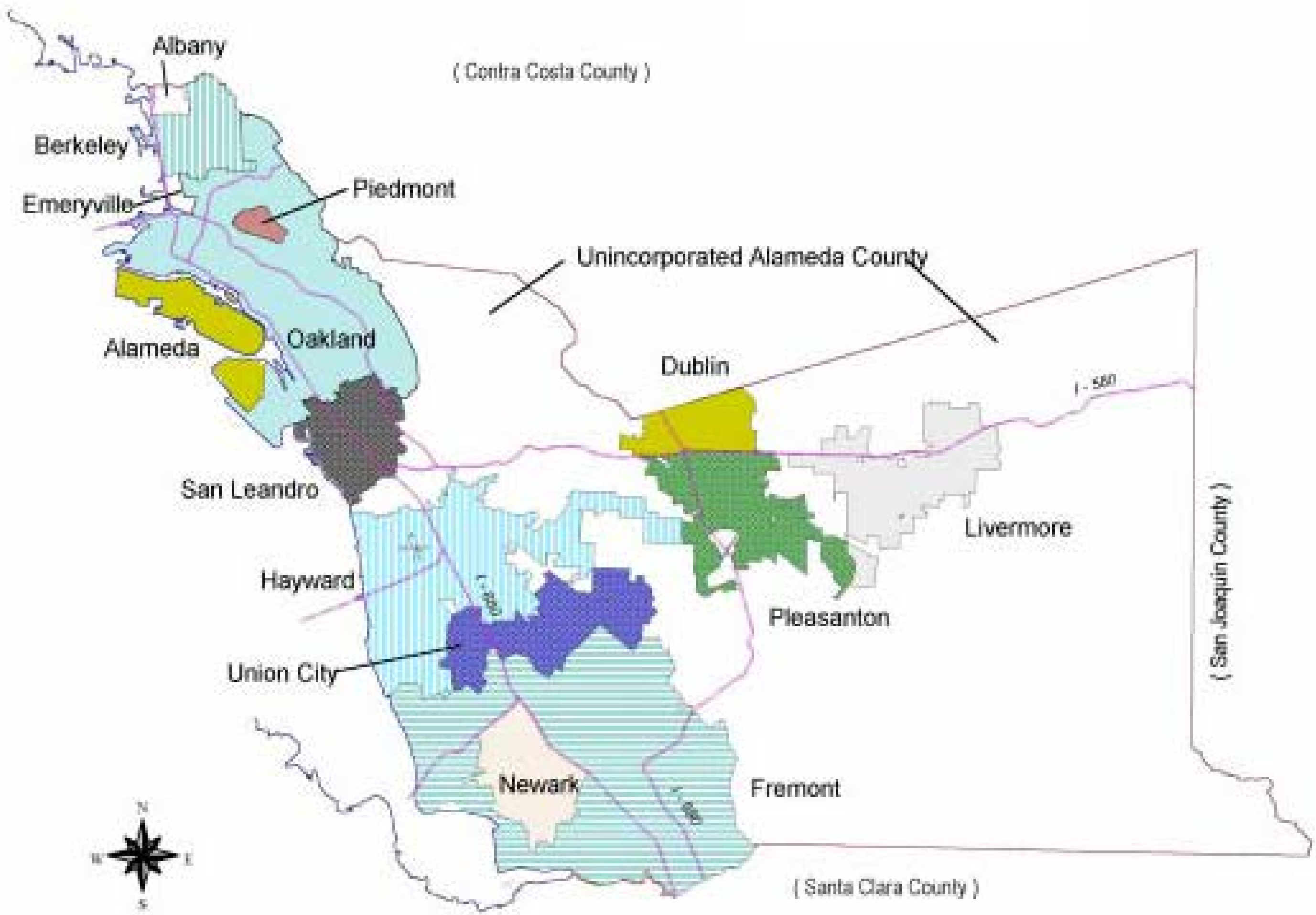
Table C4- PCBs Pollutant Reduction Plan: FYs 2001/02 and 2002/03

These plans will be replaced by new plans when available according to the reissued NPDES permit's requirements

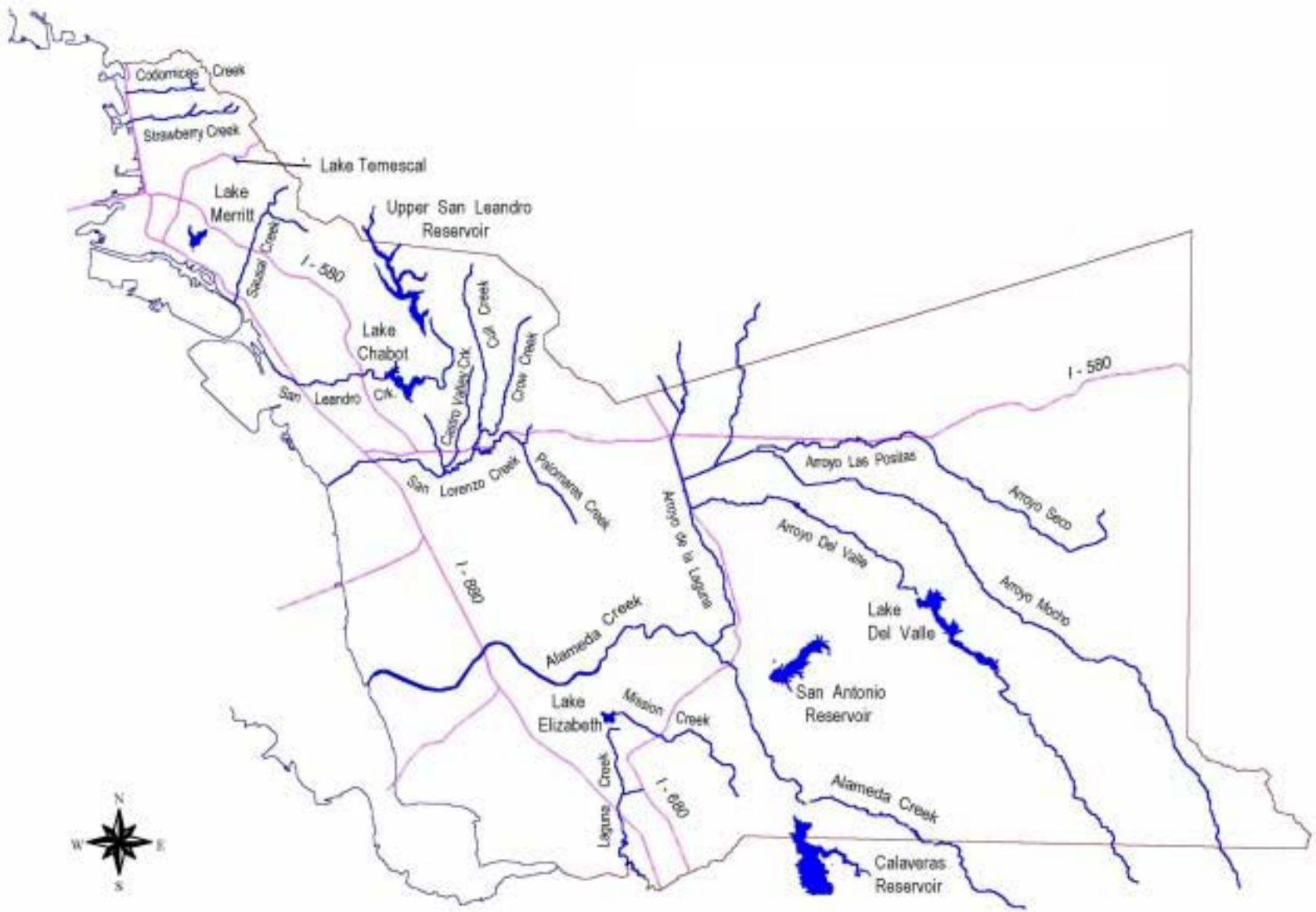
Area of Activity	Specific Tasks	Schedule	Conducted by:
Monitoring			
M-1: Use monitoring and science to further investigate local impacts and sources.	1) Conduct survey of stream sediments to assess concentrations and loadings of PCBs. 2) Conduct follow-up activities to track sources of PCBs 3) Assess potential for ongoing discharges of PCBs from industrial facilities or other sources. 4) Develop a plan to reduce discharges of PCBs in runoff from the county.	1) FY 01/02 2) FY 01/02 3) FY 01/02 4) FY 02/03	1) Monitoring Comp. 2) Monitoring Comp. 3) Monitoring Comp. 4) Monitoring Comp.
Regulatory			
R-1: Participate in the PCB TMDL process as appropriate.	1) Provide written comments on draft documents the Regional Board as appropriate. 2) Provide monitoring data to the Regional Board as appropriate.	1) Ongoing 2) Ongoing	1) Planning Comp. 2) Monitoring Comp.
Evaluation			
V-1: Evaluate implementation of the PRP	1) reviewing each of the action items and develop and conduct evaluations as appropriate. 2) report on the results of the evaluations to the Regional Board	1) Annually 2) Annually	1) Planning Comp. 2) Planing Comp.

Appendix D: Figures

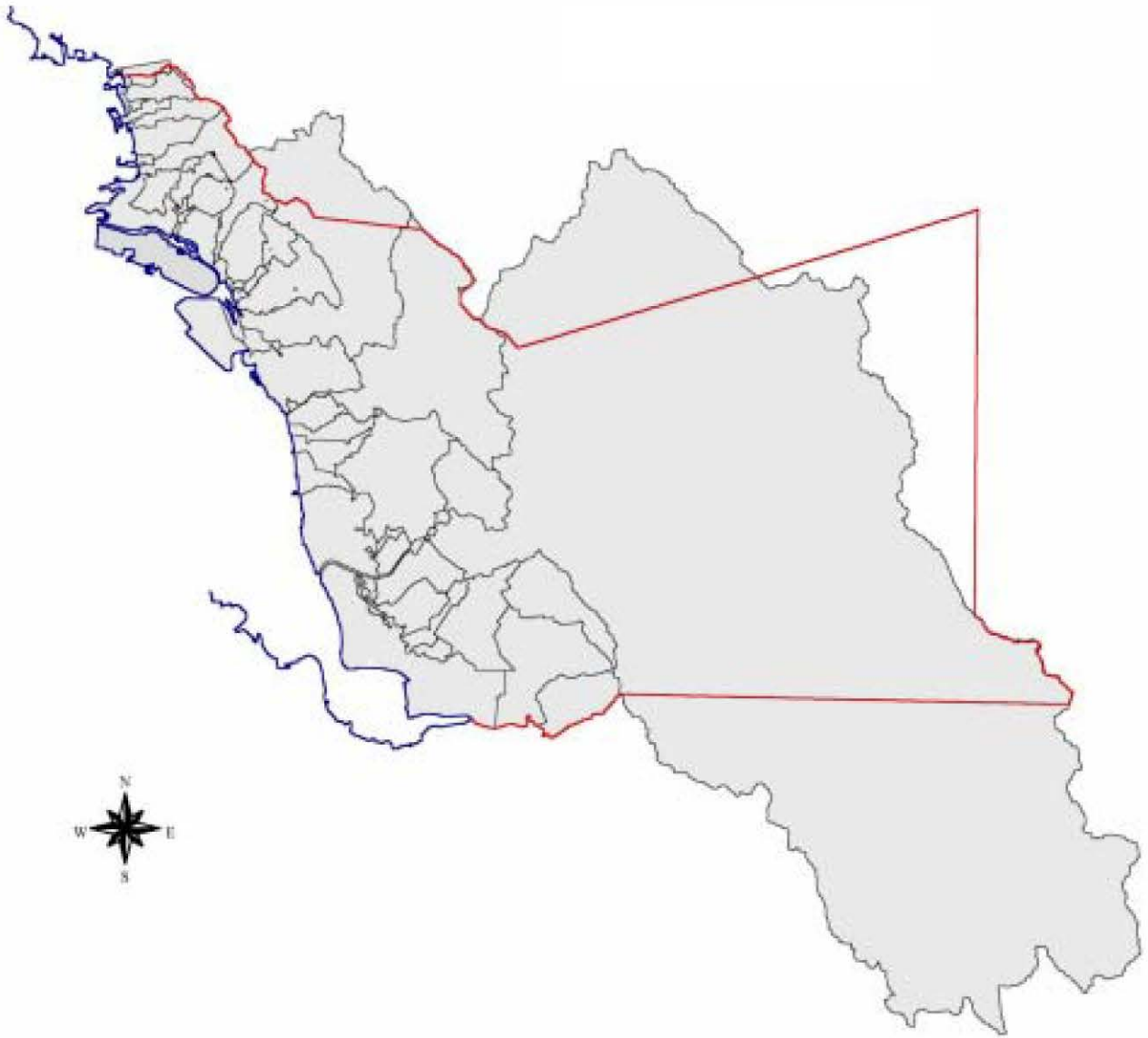
Alameda County Municipalities
Figure D-1



Major Open Creeks and Waterbodies in Alameda County
Figure D-2



Boundaries of Alameda County Watershed
Figure D-3



Alameda Countywide
Clean Water Program

A Consortium of Local Agencies

951 Turner Court, Hayward CA 94545-2698
(510) 670-5543 FAX (510) 670-5262

ATTACHMENT 31

April 18, 1996

Mr. Dale Bowyer
San Francisco Bay Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland CA 94612

Member Agencies:

Alameda

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

Alameda County

Alameda County Flood Control and Water Conservation District

Zone 7 of the Alameda County Flood Control District

Subject: Submittal of "Stormwater Management Plan" and Other Parts of the ACCWP's Municipal Stormwater NPDES Permit Re-application

Dear Mr. Bowyer:

Attached is the Alameda Countywide Clean Water Program's (ACCWP) "Stormwater Management Plan" (SWMP) for the five-year period beginning July 1, 1996. This SWMP reflects a continuing, gradual evolution of the successful stormwater pollution prevention and control methods identified and implemented during the initial NPDES permit period. The refinements incorporated into the new SWMP are based on the practical experience of the ACCWP member agencies, as well as the guidance provided by the Regional Board staff.

The SWMP is divided into three major sections. First is the Executive Summary which contains a concise overview of the tasks, schedule, and parties responsible for implementing the SWMP. The Executive Summary is intended to provide sufficient information for policy makers and elected officials to grasp what the Alameda Countywide Clean Water Program is committed to accomplishing. The second major section consists of each of the components of the SWMP. This section describes in more detail what was accomplished during the initial NPDES permit period and the tasks that will be conducted over the next five years. The last major section consists of the appendices to the SWMP. These appendices include sections on the work plan and budget for FY 1996/97 (which will serve as a base plan for future annual work plans and budgets), performance standards, and other useful information.

In addition to the SWMP, this NPDES permit re-application package includes as separate items, EPA Application Form 1 and additional Supplemental Re-application Materials dealing with the applicants' stormwater finances, maps and other required information.

We look forward to working with you to obtain the next NPDES permit. If you have any questions or comments, please contact Fred Jarvis at 832-2852 or me at 670-5563.

Sincerely,

G. Robert Hale, Ph.D
Chair of Management Committee

Alameda Countywide
Clean Water Program

A Consortium of Local Agencies

951 Turner Court, Hayward CA 94545-2698
(510) 670-5543 FAX (510) 670-5262

Loretta Barsamian
Executive Officer
Regional Water Quality Control Board
2101 Webster St., Suite 500
Oakland, CA 6412

Dear Ms. Barsamian:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,

G. Robert Hale, Ph.D
ACCWP Coordinator

MEMBER AGENCIES:

Alameda

Alameda County

Alameda County Flood Control District

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

Zone 7 of the Alameda County Flood Control District

STORMWATER MANAGEMENT PLAN

July 1996 - June 2001

Alameda Countywide
Clean Water Program

A Consortium of Local Agencies

Credits

This report is being submitted by the member agencies in the

Alameda Countywide
Clean Water Program
A Consortium of Local Agencies

City of Alameda
City of Berkeley
City of Emeryville
City of Hayward
City of Newark
City of Piedmont
City of San Leandro
Alameda County

City of Albany
City of Dublin
City of Fremont
City of Livermore
City of Oakland
City of Pleasanton
City of Union City

Alameda County Flood Control and Water Conservation District
Alameda County Flood Control and Water Conservation District, Zone 7

Implementation coordinated by:

Alameda County Public Works Agency
Alameda County Flood Control and Water Conservation District
951 Turner Court, Room 300, Hayward, California 94544

Report Prepared by:

EOA, Inc.
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1410 Jackson Street
Oakland, California 94612

in association with

Woodward-Clyde Consultants
500 12th Street, Suite 100
Oakland, California 94607

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Acronyms

ABAG	Association of Bay Area Governments
ACFC&WCD	Alameda County Flood Control & Water Conservation District
BASMAA	Bay Area Stormwater Management Agencies Association
BMPs	Best Management Practices
COE	(U.S. Army) Corps of Engineers
CRMP	Coordinated Resources Management and Planning
DUST	Demonstration Urban Stormwater Treatment (Marsh)
EPA	Environmental Protection Agency
I&IDC	Industrial & Illicit Discharge Control (Subcommittee)
MSS	Monitoring and Special Studies (Subcommittee)
NPDES	National Pollutant Discharge Elimination System
PAH	poly aromatic hydrocarbons
PCB	poly chlorinated biphenyls
PI/P	Public Information/Participation
RMP	Regional Monitoring Program
SFEI	San Francisco Estuary Institute
SWMP	Stormwater Management Plan
TIE	Toxicity Identification Evaluation

Definitions

BMPs	Practices implemented by private industry and public agencies which prevent or reduce water pollution.
General Program	Activities implemented for the joint benefit of the member agencies.
Member Agencies	The 14 cities in Alameda County, unincorporated Alameda County, the ACFC&WCD, and Zone 7 of the ACFC&WCD.
Municipalities	The 14 cities in Alameda County and unincorporated Alameda County.
Performance Standards	Pollution prevention practices the member agencies have made a commitment to implement.

Executive Summary

INTRODUCTION

Initial Efforts

Efforts to better understand the characteristics of the stormwater pollution problem in Alameda County and ways to solve it were initiated in 1987 with the formation of the Alameda County Task Force (Task Force). This Task Force consisted of representatives from all of the municipalities in Alameda County, and the Alameda County Flood Control and Water Conservation District (ACFC&WCD) agreed to serve as the coordinator. The Task Force's efforts responded to requirements adopted by the San Francisco Bay Regional Water Quality Control Board (Regional Board) in its 1986 Water Quality Control Plan.

Federal Clean Water Act Stormwater Control and Permit Mandate

About the same time that the Regional Board was beginning to place increased emphasis on stormwater pollution prevention, the federal Clean Water Act was amended in 1987 to require that stormwater discharges from municipal storm drain systems, such as those operated by Alameda County municipalities and the ACFC&WCD (including Zone 7 of the ACFC&WCD), obtain coverage under a nationwide surface water permit program called the National Pollutant Discharge Elimination System (NPDES). The U.S. Environmental Protection Agency has delegated to the State of California, including the local Regional Board, the authority to adopt and enforce these permits. In 1990, the U.S. Environmental Protection Agency completed regulations for how municipalities apply for municipal stormwater NPDES permits.

Based on the NPDES permit application requirements, the Task Force re-focused its activities to develop a comprehensive, area-wide stormwater pollution prevention and management program that has become known as the Alameda Countywide Clean Water Program (*Countywide Program*). One of the keys to these efforts was the completion in 1991 of a five-year plan[1] for implementation during the period from July 1991 through June 1996. This plan was incorporated by reference into the *Countywide Program*'s five-year municipal stormwater NPDES permit adopted by the Regional Board in October 1991. The Regional Board found that the U.S. Environmental Protection Agency's regulations for applying for a municipal stormwater NPDES permit were met as part of the *Countywide Program*'s original NPDES permit application package. All of the major activities contained in the initial plan have been completed.

Stormwater Pollution Problem

One of the key areas that continues to be addressed by a number of municipal stormwater programs, including the *Countywide Program*, is to better define the stormwater pollution problem in terms of the pollutants of concern, their sources, and measures needed to control these pollutants. Studies conducted thus far have concluded that in addition to problems such as excessive sedimentation of watercourses, principal pollutants of concern include the following: organophosphate pesticides (diazinon and chlorpyrifos), organochlorine pesticides (DDT, chlordane and dieldrin), copper,lead, zinc, mercury, polycyclic aromatic hydrocarbons (PAHs),

and polychlorinated biphenyls (PCBs). The list includes pollutants that may be having an adverse impact on local creeks and/or San Francisco Bay.

The concern with diazinon, chlorpyrifos, copper, lead, and zinc is their potential to cause chronic toxicity to aquatic life. This contrasts with organochlorine pesticides, mercury, PAHs, and PCBs which are pollutants that tend to bioaccumulate in the tissue of fish, clams, and other organisms. These bioaccumulative pollutants pose a potential long-term risk to the health of humans and to wildlife, such as harbor seals, that consume these contaminated animals.

An effective tool for correcting stormwater pollution is source control or pollution prevention; preventing pollutants from getting into stormwater is easier than removing them once they are there. Another promising tool is to work from a watershed-based approach to identify the most controllable sources of pollutants and to implement the most cost-effective solutions on the highest priority sources. In addition to taking a broader perspective on the sources of the problem, the watershed-based approach also encourages a broader view of defining problems. In some cases, water quality problems are inextricably linked to problems of aquatic habitat protection and restoration, which, on this basis, demand more comprehensive solutions than have been considered previously.

New Stormwater Management Plan

A requirement of the original NPDES permit is to re-apply for a subsequent NPDES permit. One of the essential elements of this re-application has been to prepare this new Stormwater Management Plan. EPA has not adopted specific NPDES permit re-application requirements for programs, such as the *Countywide Program*, that have met the initial NPDES permit application requirements with their original submittal.

This new Stormwater Management Plan covers the period from July 1996 through June 2001 and was prepared under the direction of the *Countywide Program*'s Management Committee. The suggestions contained in Thomas Mumley's (Regional Board staff) working draft memorandum[2] for establishing a consistent framework for municipal Stormwater Management Plans were considered in developing this new Stormwater Management Plan.

The Management Committee, comprised of representatives from each of the 14 cities in Alameda County, Alameda County, the ACFC&WCD and Zone 7 of the ACFC&WCD (member agencies), directed the development of this Stormwater Management Plan. The Management Committee was the successor to the Task Force. The Management Committee representatives are appointed by each agency's City Manager or equivalent as provided by the basic agreement[3] that established the *Countywide Program*. This agreement institutionalized the role of the ACFC&WCD as the administrator and coordinator of the General Program; the General Program consists of the portion of the *Countywide Program* conducted jointly for the mutual benefit of member agencies by the ACFC & WCD and its consultants. Under this arrangement, each agency remains responsible for controlling the discharge of pollutants to the municipal storm drains and conveyance systems that it owns and operates (as specified in agreed upon performance standards).

PURPOSE OF THE STORMWATER MANAGEMENT PLAN

The main purpose of this Stormwater Management Plan (SWMP) is to describe

in a clear and concise manner the stormwater pollution prevention and management activities to be implemented, who is responsible for implementing these activities, how implementation will be accomplished, and a schedule for completion. Similar to the previous five-year plan, the current plan is expected to be incorporated, by reference, into the re-issued NPDES permit. The re-issued NPDES permit is expected to be adopted by the Regional Board in the fall of 1996. The five-year period of this new Stormwater Management Plan coincides, approximately, with the five-year period of the next NPDES permit.

MAJOR CHANGES FROM THE PREVIOUS STORMWATER MANAGEMENT PLAN

There are a number of improvements incorporated into this SWMP that have evolved from the previous plan and from the member agencies' practical experience implementing the *Countywide Program*. There has been no reason for radical change because the previous SWMP, and the *Countywide Program* that evolved, have been basically successful. In recognition of this success, the *Countywide Program* was awarded the U.S. Environmental Protection Agency's 1994 Second Place National Stormwater Control Program Excellence Award. The most important of these improvements are briefly summarized below.

Expanded Focus on Creeks

The previous SWMP was primarily focused on tasks to protect the beneficial uses of San Francisco Bay and placed less emphasis on the numerous creeks, estuaries and wetlands located in Alameda County. The new SWMP provides a strong emphasis on the role that the *Countywide Program* has, in concert with other agencies, in promoting creek protection and restoration. A reflection of this recognition is the addition of the new Focused Watershed Approach component to this SWMP.

Annual Plans within Structure of Focused Five-Year Plan

Another improvement is to structure the SWMP to serve as a focused guide for what will be done during the next five years. The details of what will be accomplished during each subsequent fiscal year will be included as annual work plans. (The FY 1996/97 Work Plan and Budget is contained in Appendix A.) The proposed Work Plan and Budget for each subsequent fiscal year will be submitted to the Regional Board staff by March 1 each year and inserted as an addition to Appendix A following its approval by the Management Committee.

It was found that the previous SWMP attempted to forecast details about how future tasks would be implemented that proved to be unworkable and counterproductive. The new SWMP is structured so that the *Countywide Program* can determine flexibly the best way to implement the prescribed tasks. This type of approach is well-suited to a field such as stormwater pollution prevention and management given the relatively rapid increases in understanding and partnerships that are occurring and the benefits of incorporating this information iteratively.

Greater Member Agency Participation in Stormwater Management Plan Development

The new SWMP has had much greater member agency participation in its creation than the previous plan. This was possible because of the well-organized subcommittees that currently exist to help implement each of the different components of the SWMP. One of the benefits of this greater participation is that the SWMP now better represents the views of the member agencies and what

they believe is the best way to implement the *Countywide Program*.

Performance Standards

Another improvement is to incorporate into this SWMP performance standards that describe implementation goals and what *Countywide Program* member agencies have agreed to do. Appropriate performance standards can now be refined since the member agencies have had hands-on experience implementing the various aspects of the *Countywide Program* within their jurisdictions. This topic is described further under the Implementation Strategy section of this summary.

ORGANIZATION OF THE STORMWATER MANAGEMENT PLAN

This SWMP consists of the following eight major components:

2.0 Regulatory Compliance, Planning, and Program Management
3.0 Focused Watershed Management Approach
4.0 Monitoring and Special Studies
5.0 Public Information/Participation
6.0 Municipal Maintenance Activities
7.0 New Development and Construction Controls
8.0 Illicit Discharge Controls
9.0 Industrial and Commercial Discharge Controls

Each of these components contains sections describing goals, existing conditions, and major tasks.

COMPONENT GOALS, MAJOR TASKS, AND PERFORMANCE STANDARDS

The following reviews the goals and major tasks of each of these components as well as the highlights of the applicable performance standards for components 5.0 - 9.0 (Appendix B). Since performance standards summarize member agency activities, most of the major tasks described in the new SWMP are conducted by the General Program for the mutual benefit of member agencies. A quick reference to SWMP tasks and schedules, and General Program and member agency roles in implementing SWMP tasks, is provided in Figure ES-1 and Table ES-1, respectively.

2.0 Regulatory Compliance, Planning, and Program Management

The goals of this component include assisting the *Countywide Program* member agencies comply with the NPDES permit; maximizing regulatory certainty by participating in regulatory planning processes that affect the *Countywide Program*; and providing the leadership and essential program management services needed to implement the General Program.

Examples of the General Program's assistance with regulatory compliance (Task 2.1) include supplying each member agency with reporting forms; summarizing the information submitted as NPDES permit required semiannual reports; and continuing to provide annual individual reviews of each member agencies' performance. Other major tasks listed in this section include representing the *Countywide Program* at Bay Area Stormwater Management Agencies Association (BASMAA), California Stormwater Quality Task Force, and other meetings (Task 2.2); planning, initiating, and responding to regulatory and grant funding initiatives (Task 2.3); continuing to improve the *Countywide Program* (Task 2.4); and providing essential management services (Task 2.5). The *Countywide Program* has been successful in obtaining several U.S. Environmental Protection Agency grant funded projects in the past, but these funds will likely be scarcer in the future.

All of the tasks will be conducted on an ongoing basis throughout the next five years.

While the General Program is primarily responsible for implementing these tasks, the participation of the *Countywide Program* member agencies is essential (Table ES-1). One example of this is the need for each agency to complete and submit information on its progress using the agreed upon format developed as part of Task 2.1. There are no agency-specific performance standards for this component.

3.0 Focused Watershed Management Approach

Although this component is new, the previous SWMP and the other sections of this SWMP, in essence, constitute a watershed management approach. The primary purpose of this component is to determine the tangible water quality and aquatic resource benefits of using a focused, water body-specific (e.g., estuary, creek), management approach in urbanized watersheds.

The four major tasks that will be conducted as part of this component include the following: participating in watershed management projects led by other agencies (Task 3.1); conducting a pilot watershed project within a portion of the San Leandro Creek watershed where a number of successful watershed awareness activities have already been implemented (Task 3.2); identifying useful results from the pilot study and incorporating these into the *Countywide Program* (Task 3.3); and managing this component (Task 3.4). All of these tasks, except Task 3.3, will be conducted on an ongoing basis throughout the next five years. Task 3.3 will be conducted annually starting the third year.

There are no agency-specific performance standards for this component, but the continuing participation of a representative group of *Countywide Program* member agencies on the Monitoring and Special Studies Subcommittee is essential to direct this component.

4.0 Monitoring and Special Studies

The role of monitoring and special studies is to better characterize stormwater pollutant problems and identify improved solutions. The results from monitoring and special studies can help focus other *Countywide Program* program components.

Major tasks over the next five years include tracking and coordinating with the San Francisco Estuary Institute's (SFEI) Regional Monitoring Program (RMP) and BASMAA's Monitoring Committee (Task 4.1); continuing routine monitoring at selected locations in Alameda County (Task 4.2); conducting special studies to identify sources of pollutants and potential controls and support other program components and (Task 4.3); and managing data (Task 4.4).

There are no agency-specific performance standards for this component, but the continuing participation of a representative group of *Countywide Program* member agencies on the Monitoring and Special Studies (MSS) Subcommittee is essential to direct this component.

5.0 Public Information/Participation

The *Countywide Program* has made good progress in educating area residents about stormwater pollution and in encouraging changes to less polluting behavior. The purpose of this component is to continue this progress through a more targeted approach.

The primary task during the first two years of the SWMP is to target outreach about residential yard and garden care (Task 5.1). This is an important area to

focus on given the *Countywide Program*'s studies that found that organophosphate pesticides are the primary cause of toxicity found in stormwater. A second subject area for targeting will be selected during the second year of the SWMP. The other tasks in this component include the following: continuing to re-enforce existing stormwater pollution prevention messages (Task 5.2); supporting watershed-based approaches (Task 5.3); evaluating effectiveness (Task 5.4); implementing and updating the performance standards (Task 5.5); assisting with staff training (Task 5.6); continuing to partner with other groups for collaborative educational outreach (Task 5.7); and managing this component (Task 5.8). All of these tasks, except Task 5.4, will be conducted on an ongoing basis throughout the next five years. Task 5.4 will be conducted during the third year following the completion of the residential yard and garden care educational campaign.

The performance standards require that each member agency continue to educate its own staff and officials about stormwater pollution prevention and management; participate in the Public Information/Participation Subcommittee directly or indirectly through a liaison; and conduct community outreach activities to communicate the general stormwater pollution prevention message. There are specific requirements for the number of community outreach events each agency must participate in that are generally based on population. There are a wide variety of events listed in the performance standards that an agency may choose from to achieve community outreach. Additionally, the performance standards require that municipalities coordinate with their local schools about some of the educational activities available from the General Program, such as the Bay Saver Club for fourth grade students.

6.0 Municipal Maintenance Activities

Municipal maintenance activities include street sweeping, storm drain cleaning, and other maintenance-related activities that may have an impact on stormwater quality. The purpose of this component is to continue to work with municipal public works and other maintenance staff to identify ways to optimize the removal of pollutants and minimize discharges during routine maintenance activities.

The two primary tasks include implementing and updating the existing performance standards (Task 6.1) and developing additional performance standards (Task 6.2) for parking lots and sidewalks, flood control operations, and municipal swimming pools, fountains and recreational water bodies. The other tasks in this component include the following: coordinating with other public agencies and private parties who perform maintenance that affects the member agencies (Task 6.3); identifying new technologies for treating stormwater in storm drain inlets and lines and their maintenance requirements (Task 6.4); optimizing the maintenance data being collected by the member agencies (Task 6.5); continuing to train maintenance staff about stormwater (Task 6.6); and managing this component (Task 6.7). All of these tasks will be conducted on an ongoing basis throughout the next five years.

The Maintenance Subcommittee, consisting of municipal public works supervisors, has developed several categories of performance standards including street sweeping, maintenance of storm drainage facilities, corporation yards, and road maintenance and repair. To assist in developing other types of maintenance-related performance standards, a Park and Recreation Workgroup was formed consisting of municipal parks and flood control district supervisors as well as representatives from other public agencies including the

Alameda County Water District, Caltrans and the East Bay Regional Park District. The Park and Recreation Workgroup has completed performance standards for pesticide usage and pest management practices and fertilizer usage.

7.0 New Development and Construction Controls

Guidance from the *Countywide Program* and Regional Board to municipal planners and engineers has resulted in stormwater quality controls being evaluated and incorporated, as appropriate, into the design of new development and redevelopment projects. More recently, outreach efforts have also focused on municipal construction inspectors to ensure adequate implementation of stormwater quality and erosion controls during the construction phase. Outreach efforts will be expanded during the next five years to include developers and contractors.

Ongoing tasks during the next five years include tracking new development projects (Task 7.1); identifying and providing guidance on cost-effective stormwater quality controls (Task 7.2); controlling discharges from construction-related activities (Task 7.3); promoting outreach (Task 7.4); implementing and updating performance standards (Task 7.5); and managing this component (Task 7.8). Efforts will also be made during the next five years to initiate implementation of the remaining management practices listed in the Regional Board *Staff Recommendations for New and Redevelopment Controls for Stormwater Programs (Staff Recommendations)* including conducting watershed resource inventory and planning activities (Task 7.6) and coordinating with the ACFC&WCD (Task 7.7).

The performance standards were primarily based on the *Staff Recommendations* and specify tasks to be implemented now and within a specified time frame. During the development application and plan review phase, municipal staff require developers to address site planning and design techniques to prevent and minimize impacts to water quality. Stormwater quality controls are then incorporated into conditions of approval for projects. Regular in-house training involving all staff responsible for development application and plan review as well as construction site inspectors will ensure consistent requirements for stormwater quality and erosion control.

8.0 Illicit Discharge Controls

The goal of this component is to control illicit discharges by conducting field surveys of the storm drainage system and identifying sources of non-stormwater discharges. Another aspect of this component is to provide technical assistance in identifying the sources of spills to non-member agencies with existing programs that conduct spill response and clean-up.

The primary role of the General Program is to help municipalities implement a countywide consistent approach to effectively eliminate illicit discharges by developing Best Management Practices (BMPs) guidance and implementing and updating performance standards (Task 8.4); tracking and analyzing illicit discharge control program findings to better evaluate and improve future activities (Task 8.5); sharing information on the sources of illicit discharges with other agencies and *Countywide Program* Subcommittees (Task 8.6); and conducting training for illicit discharge inspectors (Task 8.7).

Illicit discharge control activities for member agencies are detailed in the performance standards which include developing an Action Plan (Task 8.1) for conducting field surveys of the storm drains (Task 8.2) and investigating spill

reports/complaints (Task 8.3) for the coming fiscal year.

9.0 Industrial and Commercial Discharge Controls

The goals of this component are to reduce the amount of pollutants in stormwater runoff and effectively eliminate non-stormwater discharges to storm drains from industrial and commercial facilities. This will be accomplished by identifying and minimizing potential pollutant sources through facility inspections, outreach activities with businesses, and appropriate follow-up and enforcement.

The primary role of the General Program is to help municipalities implement a countywide consistent approach to conducting facility inspections, outreach, and follow-up/enforcement by implementing and updating performance standards and refining BMP guidance (Task 9.2 and 9.5); tracking and analyzing inspection findings to better evaluate and improve future inspections (Task 9.3); sharing the findings from the inspection program with other agencies and *Countywide Program* Subcommittees (Task 9.4); and conducting training for industrial discharge inspectors (Task 9.6).

Component activities for member agencies are detailed in the performance standards which include developing an Inspection Plan (Task 9.1) for conducting inspections, outreach, and follow-up/enforcement (Task 9.2) for the coming fiscal year.

IMPLEMENTATION STRATEGY

Each component of the SWMP contains elements of a strategy that are unique to that component as well as elements that are common to other components. The following provides a brief summary of some of the most common recurring elements of the implementation strategy.

1) Continue to improve performance standards;

2) Improve the focus of some *Countywide Program* activities by targeting key areas for concentrated effort and accomplishment; and

3) Continue to extend the breadth of activities covered as part of the *Countywide Program* and encourage inter-agency coordination.

Improve Performance Standards

As mentioned, performance standards have been developed for all five of the major member agency activity areas (Appendix B). These performance standards are divided into three tiers: Tier I performance standards comprise the baseline level of effort that each agency is required to be currently implementing; Tier II contains performance standards that will be implemented within the next one to five years; and Tier III performance standards contain ideas that will be evaluated further for possible future implementation. The performance standards will be updated and improved annually, and revised versions will be submitted to the Regional Board staff following approval by the Management Committee and inserted as revisions to Appendix B.

There are three major reasons why it is essential to continue to improve the performance standards that each agency is required to implement. First, because most of the performance standards have been adopted recently, it is valuable to capture the practical experience of the member agencies by refining or better tailoring the standards. Second, many of the performance standards are listed in Tiers II and III. This reflects the uncertainty about what the optimum standards are and the need for additional information from special studies and other sources to continue to improve and expand on the list of Tier I performance

standards. Third, the overall philosophy of the *Countywide Program* is to be able to continuously improve all aspects of the *Countywide Program* including its performance standards.

Improve Focus of Some *Countywide Program* Activities

Several of the components of the SWMP incorporate tasks to better focus or target activities to achieve improved results. This strategy reflects a recognition that the amount of progress that can continue to be made with general initiatives is diminishing. One of the keys to being able to establish targets is having sufficient information to prioritize where additional focus is needed and likely to be effective.

The three components where targeting is most evident include Focused Watershed Management Approach, Public Information/Participation, and Monitoring and Special Studies. The entire Focused Watershed Management Approach represents a more targeted effort to achieve tangible improvements in water quality and aquatic habitat. Public Information/Participation identified residential yard and garden care as a target given the magnitude of the problem of pesticides and other pollutants originating from this source. The Monitoring and Special Studies component also reflects an improvement in targeting. The emphasis on collecting descriptive baseline information about stormwater quality and pollutant loading has shifted to obtaining information needed to further improve the stormwater pollution prevention and management activities and performance standards. This gradual shift to better targeting has been ongoing for the past few years and is reflected in special studies to resolve questions about the effectiveness of BMPs that have been requested by several *Countywide Program* Subcommittees, such as Municipal Maintenance Activities and New Development and Construction Site Controls.

Extend Breadth of Activities Covered and Inter-Agency Coordination

As the most obvious activities that contribute to stormwater pollution are being addressed, a natural progression is to identify other sources and ways to minimize the impacts from these sources. The two components that are examples of this progression are the Municipal Maintenance Activities and New Development and Construction Controls.

Another aspect of this trend to extend the breadth of activities covered is to increasingly work with other public agencies, such as the Alameda County Resource Conservation District, Alameda County Water District, Caltrans, and the East Bay Regional Park District to share information and develop agreed upon performance standards that these other agencies will implement. The involvement of other public agencies that potentially affect the quality of stormwater in member agencies' stormwater facilities or that can assist with resolving stormwater pollution problems, is invaluable to the continued improvement of the *Countywide Program* and its effectiveness in bringing about watershed-wide changes.

Lastly, the Countywide Program has also provided seed money to assist the Stanford Law School's Common Ground for the Environment work with manufacturers of automotive brake pads to evaluate less toxic formulations. (Automotive brake pads have been identified as a major source of copper.)

Notes:

1. "A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program," June 1991.

2. Thomas Mumley, September 8, 1994 memorandum to the Stormwater Permit Program Coordinators regarding Municipal Stormwater Management Plan Components.

3. "Agreement to Implement the Alameda County Urban Runoff Clean Water Program," adopted in 1991 by the elected officials responsible for governing each of the participating agencies.

Alameda Countywide
Clean Water Program
A Consortium of Local Agencies

MUNICIPAL STORMWATER NPDES PERMIT APPLICATION

Supplemental Application Materials

April 18, 1996

Alameda Countywide
Clean Water Program
A Consortium of Local Agencies

MUNICIPAL STORMWATER NPDES PERMIT APPLICATION

Supplemental Application Materials

April 18, 1996

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead

Member Agency Lead

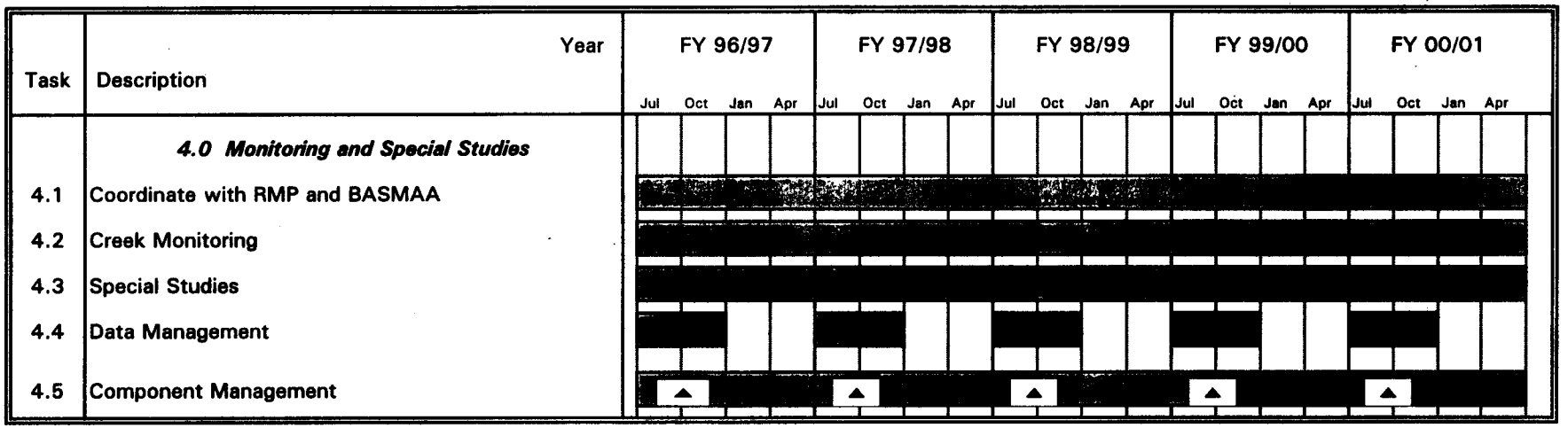
Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	2.0 Planning and Regulatory Compliance																					
2.1	Assist with Regulatory Compliance		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲	
2.2	Lead and Represent the ACCWP																					
2.3	Plan, Initiate, and Respond to Regulatory and Grant Funding Initiatives																					
2.4	Continue to Institute a Process for Continuous Improvement																					
2.5	Provide ACCWP Management Services																					
	3.0 Focused Watershed Management Approach																					
3.1	Participate in Watershed Management Projects																					
3.2	Prepare for, Conduct, and Complete Pilot Projects																					
3.3	Identify Approach for Incorporating Watershed Management as Part of 3rd SWMP																					
3.4	Component Management																					

▲ Semiannual reports due to the Regional Board

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead

Member Agency Lead



▲ Annual Monitoring Report due to the Regional Board

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead ■

Member Agency Lead □

Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	5.0 Public Information and Participation																					
5.1	Implement Targeted Outreach		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5.2	Continue to Re-enforce Old Messages		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5.3	Support Watershed-Based Approaches		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5.4	Evaluate Effectiveness										■	■	■	■								
5.5	Implement Performance Standards; Update Performance Standards		■	■			■	■			■	■			■	■			■	■		
5.6	Assist with Focused Staff Training				■	■			■	■			■	■			■	■			■	■
5.7	Seek Partners and Building Coalitions		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5.8	Component Management		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead ■

Member Agency Lead □

Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	6.0 Municipal Maintenance Activities																					
6.1	Implement Performance Standards; Update Performance Standards		■	■			■	■			■	■			■		■		■		■	
6.2	Develop Additional Performance Standards				■	■			■	■			■	■			■	■			■	■
6.3	Coordinate with Maintenance-Related Activities by Other Subcommittees, Other Agencies, and Private Industries		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6.4	Identify Maintenance Requirements of Structural Controls and Target Locations for Use		■	■			■	■			■	■			■	■			■	■		
6.5	Optimize Data Management and Analysis		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6.6	Outreach to Maintenance Staff and the Public Concerning Activities Affecting Maintenance		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6.7	Component Management		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead ■

Member Agency Lead □

Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	7.0 New Development and Construction Controls																					
7.1	Track Municipal New Development Projects		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.2	Identify and Provide Guidance on Cost-effective Stormwater Quality Controls		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.3	Control Discharges from Construction-Related Activities		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.4	Promote Outreach		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.5	Implement Performance Standards; Update Performance Standards		■	■	□	□	■	■	□	□	■	■	□	□	■	■	□	□	■	■	□	□
7.6	Conduct Watershed Resource Inventory and Planning		□	■	□	□	□	□	□	■	■	■	■	□	□	□	□	□	□	□	□	□
7.7	Coordinate with the ACFC&WCD		□	□	■	□	■	□	■	□	■	□	■	□	■	□	■	□	■	□	■	□
7.8	Component Management		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead ■

Member Agency Lead □

Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	8.0 Illicit Discharge Controls																					
8.1	Develop an Annual Action Plan																					
8.2	Conduct Field Surveys																					
8.3	Investigate Illicit Discharge Reports/Complaints																					
8.4	Effectively Eliminate Illicit Discharges/ Implement Performance Standards; Update Performance Standards																					
8.5	Track and Analyze Illicit Discharge Findings																					
8.6	Share Information on Non-stormwater Discharges and Their Sources																					
8.7	Conduct Training for Illicit Discharge Inspectors																					
8.8	Component Management																					

FIGURE ES-1
TASK LEAD AND SCHEDULE

General Program Lead ■

Member Agency Lead □

Task	Description	Year	FY 96/97				FY 97/98				FY 98/99				FY 99/00				FY 00/01			
			Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
	9.0 Industrial and Commercial Discharge Controls																					
9.1	Develop an Annual Inspection Plan																					
9.2	Conduct Facility Inspection and Outreach Activities/Implement Performance Standards; Update Performance Standards																					
9.3	Track and Analyze Inspection Findings																					
9.4	Share Information on Pollutant Contributions from from Facilities																					
9.5	Refine BMP Guidelines (as appropriate)																					
9.6	Conduct Training for Facility Inspectors																					
9.7	Component Management																					

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	2.0 Planning and Regulatory Compliance	
Task 2.1 Assist with Regulatory Compliance	Provide permit compliance information and assistance to member agencies. Prepare and submit semiannual reports to the Regional Board.	Use information provided and participate in decisions.
Task 2.2 Lead and Represent the *Countywide Program*	Participate in meetings with other agencies to represent *Countywide Program* views.	Participate in decisions so views can be represented.
Task 2.3 Plan, Initiate, and Respond to Regulatory and Grant Funding Initiatives	Identify regulatory and grant funding initiatives; assist with development of responses and manage grant funded projects.	Identify and provide information about regulatory and grant funding initiatives. Participate in decisions.
Task 2.4 Continue to Institute a Process for Continuous Improvement	Compile agencies' suggestions for General Program improvement and implement agreed upon improvements.	Provide suggestions for improvement and participate in decisions.
Task 2.5 Provide Management Services	Make sure needed management is provided.	Provide agreed upon General Program funding when invoiced.
	3.0 Focused Watershed Management Approach	
Task 3.1 Participate in Watershed Management Projects	Participate in selected watershed management projects.	Provide input/direction to General Program on *Countywide Program* role.
Task 3.2 Prepare for, Conduct, and Complete Pilot Project	Conduct Pilot Project.	Participate as needed in Pilot Project.
Task 3.3 Identify Approach for Incorporating Watershed Management as Part of 3rd SWMP	Develop approach with direction from the Monitoring and Special Studies (MSS) Subcommittee.	Participate in MSS Subcommittee meetings/discussions and review work products.
Task 3.4 Component Management	Make sure needed management is provided. Prepare reports and budgets related to watershed management activities.	Provide necessary information to the General Program. Participate in MSS Subcommittee's decisions related to watershed management activities.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	4.0 Monitoring and Special Studies	
Task 4.1 Coordinate with RMP and BASMAA	Participate in meetings with other agencies to represent *Countywide Program* views.	Provide input/direction to General Program on *Countywide Program* role in RMP and BASMAA.
Task 4.2 Creek Monitoring	Conduct monitoring.	Participate in decisions so views can be represented.
Task 4.3 Special Studies	Conduct studies under direction from the MSS Subcommittee.	Participate in decisions on which studies to conduct.
Task 4.4 Data Management	Input annual monitoring data into a database. Provide data to SFEI for integration into the BASMAA and RMP databases.	
Task 4.5 Component Management	Make sure needed management is provided. Prepare reports and budgets related to monitoring and special studies activities.	Provide necessary information to the General Program. Participate in MSS Subcommittee's decisions related to monitoring and special studies activities.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	5.0 Public Information/Participation	
Task 5.1 Implement Targeted Outreach	Identify what and how to target outreach. Implement agreed upon approach.	Participate in decisions on selecting and implementing targeted outreach.
Task 5.2 Continue to Re-enforce Old Messages	Update, re-print, and circulate existing PI/P materials.	Provide information on value of existing materials. Participate in decisions concerning updating and re-printing materials.
Task 5.3 Support Watershed-Based Approaches	Identify and implement public education activities to support watershed pilot study.	Participate in decisions.
Task 5.4 Evaluate Effectiveness	Conduct survey to measure effectiveness of targeted outreach.	Participate in survey related decisions.
Task 5.5 Implement and Update Performance Standards	Facilitate development of consensus position on updating performance standards.	Implement performance standards. Review existing standards and propose revisions.
Task 5.6 Assist with Focused Staff Training	Identify training needs and implement agreed upon training.	Identify agency's training needs, participate in decisions, and have appropriate staff attend training.
Task 5.7 Seek Partnerships and Build Coalitions	Participate in BASMAA and other agreed upon interagency projects.	Identify desired partners and participate in decisions.
Task 5.8 Component Management	Make sure needed management is provided. Prepare reports and budgets. Annually review each member agencies' compliance with performance standards and provide needed assistance.	Provide necessary information to the General Program. Participate in PI/P Subcommittee's decisions.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	6.0 Municipal Maintenance Activities	
Task 6.1 Implement and Update Performance Standards	Facilitate development of consensus position on updating performance standards.	Implement performance standards. Review existing standards and propose revisions.
Task 6.2 Develop Additional Performance Standards	Develop new performance standards with the assistance of the Maintenance Subcommittee and the Park and Recreation Workgroup.	Assist the General Program develop new performance standards.
Task 6.3 Coordinate with Maintenance-Related Activities by Other Subcommittees, Other Agencies, and Private Industries	Coordinate forming the appropriate workgroups to identify activities of concern and possible BMPs.	Participate in workgroups as appropriate.
Task 6.4 Identify Maintenance Requirements of Structural Controls and Target Locations for Use	Provide information on structural controls.	Identify maintenance requirements of structural controls. Target locations for possible controls.
Task 6.5 Optimize Data Management and Analysis	Optimize ongoing collection, recording and analysis of maintenance data.	Provide necessary maintenance data. Work with the General Program to optimize data collection.
Task 6.6 Outreach to Maintenance Staff and the Public Concerning Activities Affecting Maintenance	Conduct workshops and develop educational materials.	Promote and participate in workshops. Assist in developing and distributing outreach materials.
Task 6.7 Component Management	Make sure needed management is provided. Prepare reports and budgets. Annually review each member agency's' compliance with performance standards and provide needed assistance.	Provide necessary information to the General Program. Participate in Maintenance Subcommittee and Park and Recreation Workgroup decisions.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	7.0 New Development and Construction Controls	
Task 7.1 Track Municipal New Development Projects	Request and seek information from municipalities on new development projects. Compile and distribute information.	Provide information on new development projects and erosion and stormwater quality controls.
Task 7.2 Identify and Provide Guidance on Cost-Effective Stormwater Quality Controls	Seek and compile information on stormwater quality controls.	Provide information on existing stormwater quality controls, if applicable.
Task 7.3 Control Discharges from Construction-Related Activities	Assist member agencies in educating contractors about BMPs.	Educate contractors on BMPs. Inspect for construction-related discharges.
Task 7.4 Promote Outreach	Conduct outreach to municipal staff and initiate other outreach efforts. Prepare and distribute educational materials.	Promote and participate in General Program outreach activities. Conduct in-house training. Distribute educational materials to the public and municipal staff.
Task 7.5 Implement and Update Performance Standards	Facilitate development of consensus position on updating performance standards.	Implement performance standards. Review existing standards and propose revisions.
Task 7.6 Conduct Watershed Resource Inventory and Planning	Coordinate with BASMAA to assist municipalities comply with Management Practice A of the Regional Board *Staff Recommendations*.	Determine criteria for sensitive areas. Review local information on sensitive areas. Conduct activities following guidance from BASMAA or the General Program.
Task 7.7 Coordinate with the ACFC&WCD	Coordinate with BASMAA and conduct meetings with the ACFC&WCD to assist the comply with Management Practices I and K of the Regional Board *Staff Recommendations*.	Participate in meetings with the ACFC&WCD.
Task 7.8 Component Management	Make sure needed management is provided. Prepare reports and budgets. Annually review each member agency's' compliance with performance standards and provide needed assistance.	Provide necessary information to the General Program. Participate in New Development Subcommittee's decisions.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
	8.0 Illicit Discharge Control	
Task 8.1 Develop an Annual Action Plan	(Report form is developed under Task 8.8)	Prepare Action Plan.
Task 8.2 Conduct Field Surveys	(Consistency issues are coordinated under Task 8.4)	Survey storm drains for illicit discharges and conduct follow-up to identify and eliminate sources, as possible.
Task 8.3 Investigate Spill Reports/Complaints	(Consistency issues are coordinated under Task 8.4)	Investigate illicit discharge reports/ complaints and conduct follow-up to identify sources, as possible.
Task 8.4 Effectively Eliminate Illicit Discharges; Implement and Update Performance Standards	Coordinate consistency issues with the Industrial & Illicit Discharge Control (I&IDC) Subcommittee. Facilitate development of consensus position on updating performance standards.	Participate in decisions concerning consistency issues. Implement performance standards. Review existing standards and propose revisions.
Task 8.5 Track and Analyze Illicit Discharge Findings	Maintain and analyze quarterly summary reports for ways to improve future activities with direction from the I&IDC Subcommittee.	Participate in evaluating report summaries.
Task 8.6 Share Information on Illicit Discharges and Their Sources	Compile and distribute information to Subcommittees.	Disseminate information to other departments and agencies, as appropriate.
Task 8.7 Conduct Training for Illicit Discharge Inspectors	Identify training needs and implement agreed upon training.	Identify agency's training needs, participate in decisions, and have appropriate staff attend training.
Task 8.8 Component Management	Make sure needed management is provided. Prepare reports and budgets. Prepare Annual Action Plan reporting form. Annually review each member agencies' compliance with performance standards.	Provide necessary information to the General Program. Participate in I&IDC Subcommittee's decisions.

TABLE ES-1
GENERAL PROGRAM AND MEMBER AGENCY ROLES

Task Description	General Program Roles	Member Agency Roles
9.0 Industrial and Commercial Discharge Control		
Task 9.1 Develop an Annual Inspection Plan	(Report form is developed under Task 9.7)	Complete Inspection Plan using reporting forms.
Task 9.2 Conduct Facility Inspection and Outreach Activities; Implement and Update Performance Standards	Coordinate consistency issues with the I&IDC Subcommittee. Facilitate development of consensus position on updating performance standards.	Conduct facility inspections, outreach, and follow-up/enforcement, as appropriate. Participate in decisions concerning consistency issues. Implement performance standards. Review existing standards and propose revisions.
Task 9.3 Track and Analyze Inspection Findings	Maintain *Countywide Program* facility database with direction from I&IDC Subcommittee.	Participate in discussions and decisions on using the database to evaluate inspection activities.
Task 9.4 Share Information on Pollutant Contributions from Facilities	Compile and distribute information to Subcommittees.	Disseminate information to other departments and agencies, as appropriate.
Task 9.5 Refine BMP Guidelines (as appropriate)	Coordinate discussions on updating and/or refining BMP guidance.	Participate in discussions and decisions on refining BMP guidelines. Disseminate new BMPs, as appropriate.
Task 9.6 Conduct Training for Facility Inspectors	Identify training needs and implement agreed upon training.	Identify agency's training needs, participate in decisions, and have appropriate staff attend training.
Task 9.7 Component Management	Make sure needed management is provided. Prepare reports and budgets. Prepare Annual Inspection Plan reporting form. Annually review each member agencies' compliance with performance standards.	Provide necessary information to the General Program. Participate in I&IDC Subcommittee's decisions.

SECTION 1

Introduction and Background

INTRODUCTION

This Stormwater Management Plan (SWMP) serves as the basis of the Alameda Countywide Clean Water Program's National Pollutant Discharge Elimination System (NPDES) permit application renewal package and stormwater program for the next five fiscal years (July 1996 - June 2001). The Alameda Countywide Clean Water Program's initial, five-year NPDES permit expires in October 1996.

The Alameda Countywide Clean Water Program consists of the 14 cities in Alameda County, Alameda County, the Alameda County Flood Control and Water Conservation District (ACFC&WCD), and Zone 7 of the ACFC&WCD.

The SWMP describes specific, area-wide, stormwater pollution prevention and management goals, tasks and completion schedules. In addition, one-year work plans (Appendix A), which describe in more detail how the five-year SWMP will be completed, will be submitted annually to the San Francisco Bay Regional Water Quality Control Board (Regional Board). These annual work plans will be added to Appendix A as they are developed and approved by the Alameda Countywide Clean Water Program and Regional Board staff.

The SWMP also contains detailed performance standards (see Appendix B) that identify what each participating agency is required to do to control stormwater pollutants from the storm drains and conveyance systems that it owns and operates. The Alameda Countywide Clean Water Program (*Countywide Program*) will review these performance standards annually and revise them as needed. Modified performance standards will be incorporated into Appendix B following approval by the Management Committee and submittal to the Regional Board staff.

BACKGROUND

Regulatory requirements for developing a stormwater pollution prevention and management program in Alameda County originated from the following two sources:

- San Francisco Bay Regional Water Quality Control Board's 1986 amendments to its Water Quality Control Plan; and
- 1987 amendments to the federal Clean Water Act.

The Regional Board initially required that all the cities in Alameda County, Alameda County, the ACFC&WCD, and Zone 7 of the ACFC&WCD develop basic information about the characteristics of the stormwater pollution problem in Alameda County and ways to solve it. A summary of the results of *Countywide Program*'s monitoring and special studies to identify stormwater pollutants of concern, pollutant sources, and the effectiveness of control measures is contained in the Monitoring and Special Studies Component of this plan.

The federal Clean Water Act's 1987 amendments require municipalities to effectively prohibit non-stormwater discharges to municipal storm drain systems and to implement controls to reduce pollutants in stormwater to the maximum extent practicable. These federal Clean Water Act requirements are implemented through NPDES permits. In 1990, the U.S. Environmental Protection Agency (EPA) adopted regulations that

prescribed the NPDES permit application requirements for municipal stormwater programs.

In 1991 the *Countywide Program* developed a comprehensive, area-wide stormwater pollution prevention and management program. The requirements of this program were incorporated into "A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program[1]." The 1991 SWMP included tasks, schedules and parties responsible for implementation of tasks during the initial five year NPDES permit period.

The Regional Board adopted Order No. 91-146 (NPDES Permit No. CA0029831) for the *Countywide Program* in October 1991. The permit covered the discharge of municipal stormwater from the 14 cities in Alameda County, Alameda County, the ACFC&WCD, and Zone 7 of the ACFC&WCD. One of the NPDES permit's findings was that the SWMP (and other information contained in the NPDES permit application package) satisfied U.S. EPA's NPDES permit application requirements for municipal stormwater dischargers.

Almost all of the tasks in the 1991 SWMP were completed on schedule. One task in the Municipal Maintenance component was delayed (develop BMPs for erosion control on undeveloped lands) and two tasks in the New Development and Construction Site Control component were re-scoped (development of a planning procedures manual and a BMP guidance manual for public agencies and developers).

After the Park and Recreation Workgroup was formed to develop BMPs for erosion control on undeveloped lands, it was clear that management of pesticides and fertilizers was a higher priority. Following development of performance standards for pesticide and fertilizer usage, the erosion control on undeveloped lands performance standards were developed.

The manuals for new development were re-scoped following development of the California Stormwater Construction BMP Handbook in March 1993 and Regional Board *Staff Recommendations for New and Redevelopment Controls for Stormwater Programs (Staff Recommendations)* in April 1994. To avoid duplication of effort and assist member agencies comply with the *Staff Recommendations*, a Bay Area Preamble to the California Stormwater Construction BMP Construction Handbook and *Staff Recommendations* was prepared in July 1994.

GEOGRAPHIC DESCRIPTION

Bordering the east bay shoreline of San Francisco Bay, Alameda County encompasses 738 square miles of land and has a total population of approximately 1.4 million. Highly urbanized in the western portion, eastern Alameda County still has considerable agricultural and open space lands (although substantial land development is predicted during the next 10 years). The topography of Alameda County is flat near San Francisco Bay, rises in elevation to the hills formed by the Diablo Range, and then becomes relatively flat heading east into the Livermore Valley. Figure 1-1 shows municipal jurisdictions and major watercourses in Alameda County which discharge directly to San Francisco Bay.

BASELINE CONDITIONS

As part of the initial NPDES permit application submittal, the *Countywide Program* developed baseline information in several essential areas. These included evaluating the status of the *Countywide Program* agencies' legal authority to control stormwater pollutants, reviewing the status of local new development erosion and pollutant controls, evaluating

existing commercial and industrial inspection programs, and establishing accurate information on stormwater pollutants. Some of this information is summarized here to provide additional background for what was accomplished during the initial NPDES permit period and what will be accomplished as part of this SWMP. In addition, this section summarizes information on pollutant trends from an industrial area.

Legal Authority

Baseline information on each agencies' legal authority to regulate discharges to its municipal storm drains was summarized in Appendix A of the initial SWMP. The deficiencies identified as part of this review led to the development by Alan Waltner, Attorney at Law, of a model stormwater ordinance. This basic ordinance was adopted by each of the municipalities participating in the *Countywide Program*. This ordinance was also used in the *California Storm Water Best Management Practice Handbooks*. Several other municipal stormwater programs in the Bay Area also modeled their local ordinances after the *Countywide Program's* model ordinance.

Review of Local Construction Site Control Programs

As part of Appendix B of the initial SWMP, the *Countywide Program* developed a summary of each municipality's erosion and sedimentation control regulations. The baseline review did not include a review of local enforcement and building inspection programs. During the initial NPDES permit period, municipalities have made improvements to their regulations and procedures.

One example of improvement is the grading ordinance adopted by the City of San Leandro in 1993. Not only does the San Leandro grading ordinance require the preparation of an erosion and sedimentation control plan, but it also requires the preparation of a pollutant control plan. The pollutant control plan must identify potential pollutants to stormwater and controls both during and after construction. Lastly, the ordinance requires that the City Engineer review and approve the Stormwater Pollution Prevention Plan, if coverage is required by the State Water Resources Control Board's General Construction Permit.

The Regional Board staff provided additional guidance on its expectations for erosion and sedimentation control as part of its April 1994 *Staff Recommendations for New and Redevelopment Controls for Storm Water Programs*. Its June 1995 "Benchmarks for Evaluating Implementation of Municipal New Development Controls" also contains a section titled "Erosion Control Program Review."

The Regional Board staff's review of the *Fiscal Year 1994/95 Annual Report* found that thirteen municipalities had acceptable programs for controlling pollutants from new development and redevelopment. Two municipalities had conditionally acceptable programs, but were not found to have deficient erosion and sedimentation control programs.

Evaluation of Initial Commercial and Industrial Inspection Programs

As part of Appendix C of the initial SWMP, the *Countywide Program* evaluated the commercial and industrial inspection programs that existed in 1990. In addition, a database was developed containing industrial and commercial facilities and information to help municipalities decide which department or outside agency would be most suitable for conducting stormwater inspections and educational outreach activities. Approximately, 4000 of these facilities were identified as being inspected and tracked by existing regulatory programs.

Based on this information, municipalities incorporated, when necessary through interagency contracts, the stormwater inspections of commercial and industrial facilities into these existing inspection programs. Depending on the municipality, the stormwater inspections were incorporated into wastewater treatment source control inspections, hazardous materials inspections, or fire safety inspections.

The stormwater inspections include facilities also covered under the California General Industrial Storm Water NPDES permit (General Industrial Permit). Municipalities cooperate with the Regional Board staff, which has jurisdiction and responsibility for General Permit inspections, by providing information about these sites to the Regional Board staff under the terms of the 1992 agreement and subsequent letter agreements. The 1992 agreement is described in more detail under the Existing Agreements subsection of the Regulatory Compliance, Planning and Program Management component (Section 2).

As the *Countywide Program* gained more experience during the initial NPDES permit period, the original database was modified and updated to be able to achieve three objectives. One objective is to assist municipalities manage their inspection programs by providing information to help identify high priority facilities for annual inspection. The second objective is to assist with the *Countywide Program's* NPDES permit reporting requirements. The last objective is to be able to evaluate the effectiveness of inspections and educational outreach in eliminating illicit discharges and minimizing pollutants in stormwater.

Loads Assessment

During the 1989-90 and 1990-91 wet seasons, the *Countywide Program* conducted testing to determine the types and concentrations of pollutants in stormwater from different categories of Alameda County land uses and from dry weather runoff. This baseline testing was conducted prior to the initial NPDES permit and was summarized in the *Loads Assessment* report completed in 1991 by Woodward-Clyde Consultants.

Once this baseline was established, the *Countywide Program* directed its efforts to identifying the sources of pollutants and to conducting studies on how to improve BMPs for controlling pollutants in stormwater. Information on what has been learned about pollutant sources and BMP effectiveness is summarized in the Monitoring and Special Studies component, Section 4.

Some of the major findings of the *Loads Assessment* report include the following:

1) The concentrations of metals in dry-weather flows were often below detection levels and were significantly less than the concentrations of metals in stormwater runoff; the metal loading from dry weather contributed less than 2 percent of the total metals load to San Francisco Bay.

2) The principal source of metals was residential areas; residential areas covered about one-third of the area studied but accounted for about two-thirds of the metal loading. The remaining one-third of the load came from commercial, transportation, and industrial land uses which covered about 13 percent of the area studied. Open space areas constituted about 55 percent of area studied, but contributed less than 1 percent of the metal loading.

3) Comparing stormwater with wastewater treatment plant metal loading to San Francisco Bay showed that during an average hydrologic year more than one-half the metals from

Alameda County originated from stormwater; the rest of the metals from Alameda County originated from wastewater treatment plants. The estimates of stormwater metal loading were imprecise with a 90 percent confidence interval of plus or minus 30 percent. There is also further uncertainty about the testing because it was conducted during a drought period.

4) Approximately 70 to 80 percent of each metal tested was associated with particulate matter and the rest was dissolved, except for lead. Approximately 94 percent of the lead was associated with particulate matter. The portion of a metal associated with particulates is generally of less concern to water quality than the portion that is dissolved.

5) Among organic chemicals, a group commonly associated with combustion products and oil, known as PAHs (polycyclic aromatic hydrocarbons), were frequently detected in stormwater. Volatile organics, organophosphorus pesticides, chlorinated herbicides, and organochlorine pesticides were not detected during a one-time analysis of stormwater.

The conclusions of the *Loads Assessment* study helped to guide the *Countywide Program's* subsequent work, as shown in the following examples.

The lack of dry weather flows in many areas and the low levels of pollutants in the dry weather flows tested helped to confirm that the *Countywide Program* was not plagued by major, widespread sources of non-stormwater discharges. The approach used to identify and eliminate the small and episodic non-stormwater discharges typically found is described in the Illicit Discharge Controls component (Section 8).

Based on these and subsequent monitoring studies, the *Countywide Program* worked with the Bay Area Stormwater Management Agencies Association (BASMAA) to develop a strategy for detecting long-term trends in stormwater quality. The high variability of pollutant concentrations in stormwater makes it difficult to detect possible reductions in pollutants over time. The strategy developed was to combine efforts with the Santa Clara Valley Nonpoint Source Pollution Control Program and the Contra Costa Clean Water Program to monitor about five storm events annually at two stations in each county.

Industrial Catchment Study

One of the studies conducted during the initial NPDES permit period was to determine whether the implementation of pollutant control measures would result in a detectable reduction of pollutants in stormwater. Efforts are planned to continue to quantitatively assess the effectiveness of pollutant control measures during the next five-year period.

Stormwater sampling was conducted during the 1990-91 through 1994-95 wet seasons in an industrial catchment area to characterize stormwater quality, identify pollutants of concern and possible sources, and evaluate the effectiveness of control measures. During initial stormwater sampling, high concentrations of zinc were detected. A metal galvanizer was suspected of being the primary source of zinc, and other industries such as auto wreckers and repair shops, steel shipping, and trucking were suspected of contributing other pollutants.

Beginning in 1993, the local municipality implemented various control measures including industrial inspections, educational outreach to the local business community, increased street sweeping

and litter removal, and installation of "no dumping" signs. The results of stormwater sampling conducted after implementation of control measures in the 1993-94 and 1994-95 wet seasons indicate a significant decrease in total copper, total zinc and dissolved zinc compared to the pre-implementation period.

While the number of samples and sampling time period are relatively limited, the data illustrate the potential value of targeting specific industrial areas for inspection of illicit discharges, educational outreach activities and coordination with the business community, and other control measures.

MANAGEMENT STRUCTURE

The "Agreement to Implement the Alameda County Urban Runoff Clean Water Program" was adopted in 1991 by the elected officials responsible for governing each of *Countywide Program*'s participating agencies. This agreement runs until March 1997 and will be amended as part of its continuance through June 2002. This Agreement provided for the establishment of a Management Committee with representatives and alternates appointed by the City Manager or equivalent from each participating agency.

The Management Committee has been responsible for all of the major decisions involving the *Countywide Program*, including decisions on expenditures for General Program activities to assist the member agencies. To assist the Management Committee in implementing the various components of the SWMP, the General Program, which implements activities for the joint benefit of the participating agencies, formed various subcommittees and municipalities assigned appropriate staff to these subcommittees. The current organization structure for implementing the various components of this SWMP is illustrated in Figure 1-2. The Policy Level Subcommittee develops recommendations on policy and budget issues for the Management Committee which has ultimate authority for making decisions recommended by all the Subcommittees.

ORGANIZATION OF THE STORMWATER MANAGEMENT PLAN

Program components in this SWMP are similar to the initial SWMP as shown in Table 1-1.

Although similar, the current SWMP contains three major organizational changes compared to the previous SWMP:

1) A Legal Authority component is not prescribed since all municipalities have adopted stormwater quality control ordinances fully satisfying this obligation (see Appendix C);

2) A new section entitled Focused Watershed Management Approach has been added to support the implementation of creek-specific water quality and aquatic habitat protection and improvement. This work is a continuation of similar work initiated by the ACFC&WCD in San Leandro Creek and elsewhere; and

3) The Monitoring and Management of Stormwater Facilities components have been combined into one component, Monitoring and Special Studies, since the pilot and monitoring studies conducted for these components are similar and both components are implemented through the Monitoring and Special Studies Subcommittee.

In addition, rather than listing measures of effectiveness (or Evaluation of Controls) in a separate component, the

current SWMP now specifies that the fiscal year-end reports will include an evaluation of effectiveness for each program component.

Each of the program components contains sections describing goals, existing conditions, major tasks, and an implementation strategy. The existing conditions sections summarize activities and progress during the initial NPDES permit period, information essential to understanding each component's direction over the next five year period. This background information is not intended to be comprehensive.

The current SWMP is an ongoing program and many of the requirements of the EPA stormwater regulations were satisfied by the initial permit application and activities during the first five years. To document this compliance and provide additional information on baseline conditions, the following documents are incorporated by reference into this SWMP:

- The original SWMP, entitled "A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program," including appendices, dated June 28, 1991;

- Semiannual reports submitted to the Regional Board setting forth detailed information on what the *Countywide Program* has accomplished, and documenting the levels of effort and environmental results to date; and

- Additional reports, agreements and documents developed during the initial NPDES period, listed in Appendix C.

The current SWMP is a continuation and enhancement of the ongoing *Countywide Program.* Refinements and improvements are also anticipated during the next five years. To implement this approach, the ongoing program serves as the base proposal for the next five-year phase, to be adjusted as proposed in this SWMP.

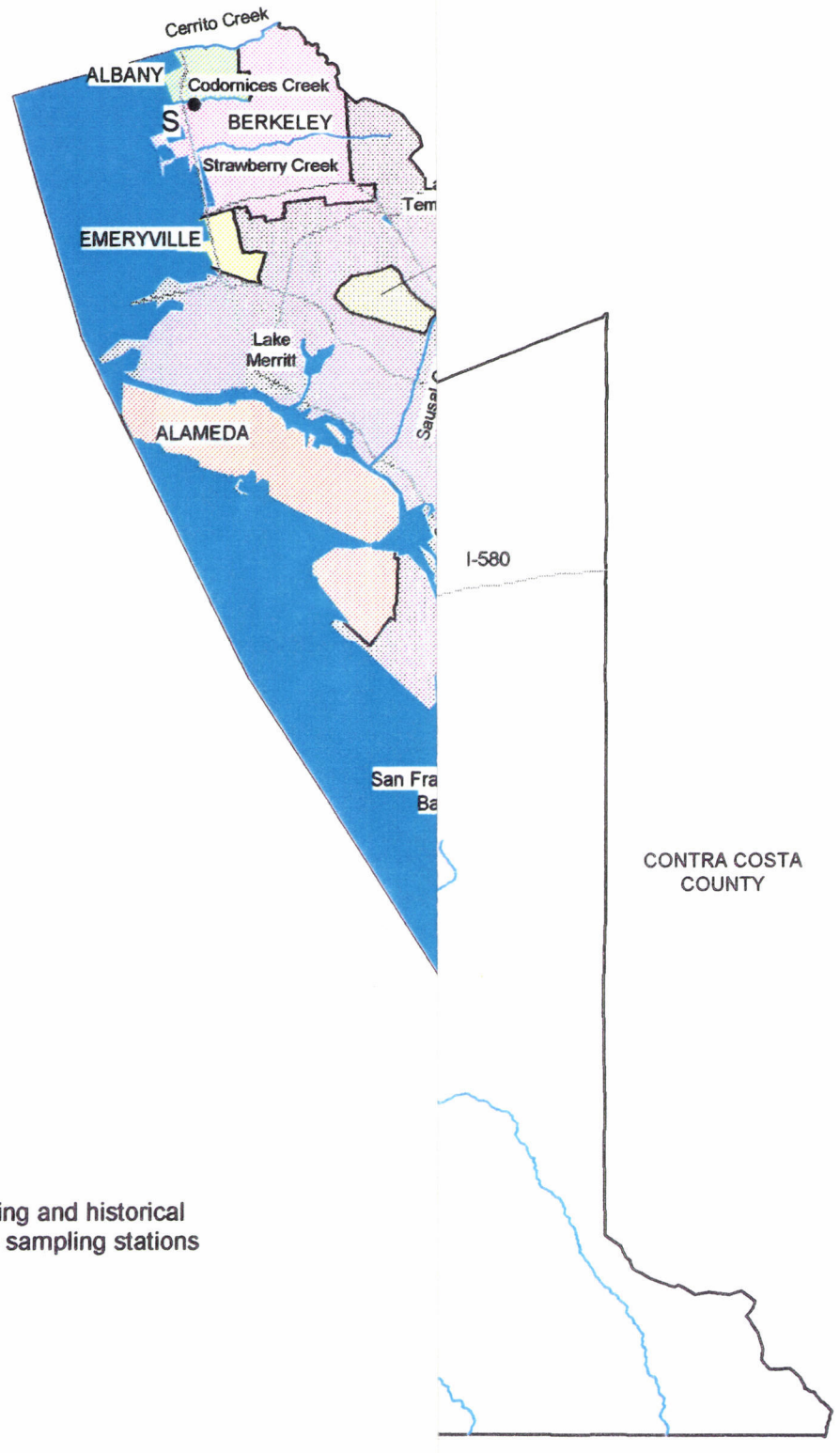
Similarly, during each of the next five years, the program for the preceding year will serve as the base proposal for the following year, subject to appropriate modifications and improvements as experience develops, documented in annual work plans and budgets. In this way, planning continuity and certainty will be retained, while allowing necessary flexibility to take advantage of an expanding knowledge base.

Similarly, many components already developed will be retained throughout the next five-year phase, again subject to necessary revisions. For example, each of the co-permittees have adopted stormwater management ordinances to effectively prohibit non-stormwater discharges to the stormwater system and to reduce pollutants in stormwater to the maximum extent practicable. These adopted ordinances will remain in effect, and if revised will be no less effective in eliminating illicit discharges or reducing pollutants in stormwater to the maximum extent practicable.

Notes:

1. The Alameda County Urban Runoff Clean Water Program changed its name to the Alameda Countywide Clean Water Program in December 1994.

Figunty



S = existing and historical stream sampling stations

W:\GRAPHICS\C\MAPDATA\ALAMEDA\SWMP-II.WOR

FIGURE 1-2
ORGANIZATIONAL STRUCTURE FOR IMPLEMENTING STORMWATER MANAGEMENT PLAN COMPONENTS

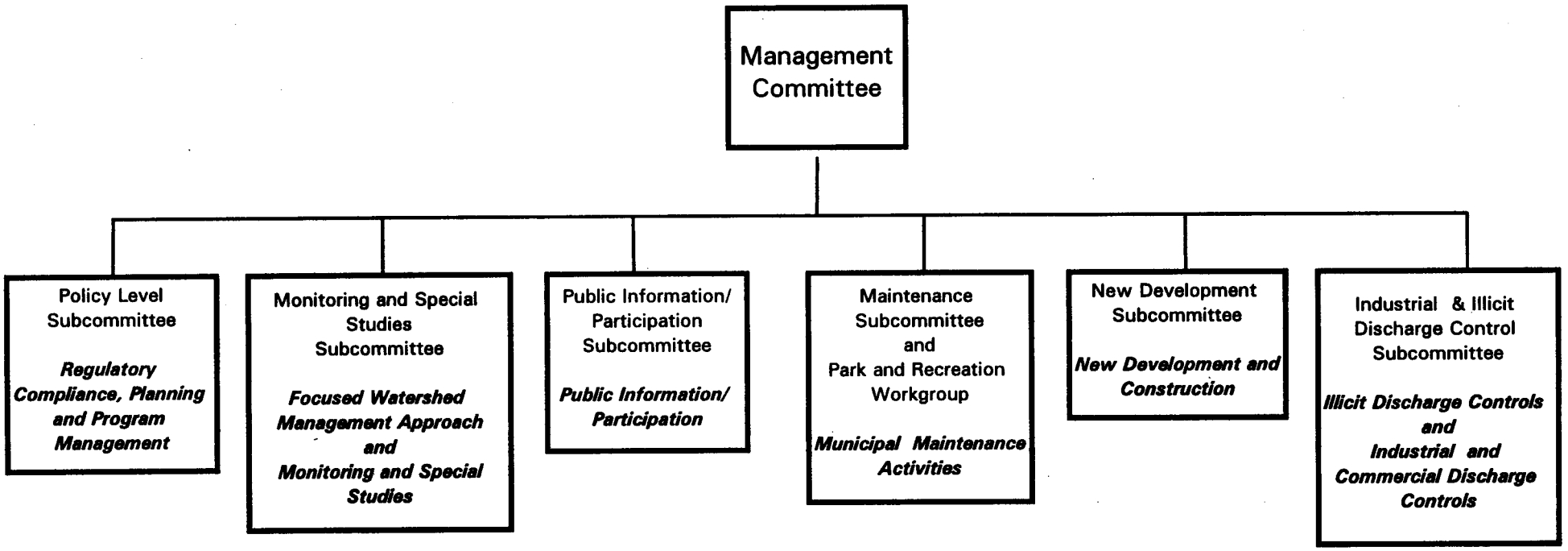


TABLE 1-1
COMPARISON OF COMPONENT TITLES

Current SWMP		Previous SWMP	
1.0	Introduction	1.0	Introduction
2.0	Regulatory Compliance, Planning and Program Management	2.0	Overall Program Management
3.0	Focused Watershed Management Approach	3.0	Legal Authority
4.0	Monitoring and Special Studies	4.0	Evaluation of Controls
5.0	Public Information/Participation	5.0	Public Information/Participation
6.0	Municipal Government Activities	6.0	Municipal Government Activities
7.0	New Development and Construction	7.0	New Development and Construction
8.0	Illicit Discharge Control	8.0	Illicit Discharge Control
9.0	Industrial Discharge Control	9.0	Industrial Discharge Control
		10.0	Monitoring
		11.0	Management of Stormwater Facilities

SECTION 2

Regulatory Compliance, Planning, and Program Management

GOALS

The *Countywide Program* is driven by the regulatory requirements of the San Francisco Bay *Water Quality Control Plan, San Francisco Bay Basin (Basin Plan)*, the Clean Water Act, the California Water Code, and other federal and state regulations as addressed in the *Countywide Program*'s stormwater NPDES permit and this SWMP. As a regulated program, the SWMP is of primary importance to comply with the NPDES permit. The General Program assists all member agencies to understand and comply with their NPDES permit reporting and other requirements. It is also important that the *Countywide Program* help to shape new proposed requirements that will affect its future. If the *Countywide Program* fails to shape its own future, others will do so by default.

The three primary goals of this component include the following:

- Assist member agencies meet their obligations under the stormwater NPDES permit;
- Help maximize regulatory certainty by participating in the regulatory planning process to make sure the views and experience of the *Countywide Program* are represented; and
- Provide leadership and essential program management services to implement the General Program.

EXISTING CONDITIONS

This section of the SWMP briefly summarizes what has been accomplished during the initial NPDES permit period from 1991 through 1996.

Regulatory Compliance

Since FY 1992/93 the General Program has met annually with each of its individual member agencies. One of the purposes of these meetings has been to informally review each agency's progress and to provide suggestions for improvement, if needed. An additional purpose has been to obtain suggestions for improving the *Countywide Program*. Starting in FY 1994/95, the Regional Board staff has participated in these meetings to hear directly from each agency about its problems and to provide verbal direction on the Regional Board staff's expectations. These meetings have been invaluable in helping some of the participating agencies better understand how to comply with the requirements of their stormwater NPDES permit.

One of the recurring problems identified in these meetings is a failure of the member agencies to take full credit for many of their oil recycling, creek cleanup, and other activities when preparing their progress reports for the stormwater program. Improvements are being made. In particular, the major push to develop and provide training on performance standards is helping. Performance standards, contained in Appendix B, have been developed for all of the major member agency-specific activity areas. These performance standards are divided into three tiers: Tier I performance standards comprise the baseline level of effort that each agency is required to be currently implementing; Tier II contains performance standards that will be implemented within the next one to five years; and Tier III performance standards

contain ideas that will be evaluated further for possible future implementation.

Planning

The *Countywide Program* participated actively in helping to shape stormwater quality-related regulatory initiatives that have been developed by the Regional Board and others. The *Countywide Program* has taken the initiative in modifying proposed amendments to the Regional Board's Basin Plan and improving other Regional Board policies and plans. This participation has resulted in improvements to many of these documents.

At the state level, the *Countywide Program* participates through the California Stormwater Quality Task Force to advise the State Water Resources Control Board (State Board) on proposed plans and policies. In addition, the *Countywide Program* participated in helping to develop the External Program Review Recommendations for improving the operations of the State Board. Another area where the *Countywide Program* assisted the State Board was on the State Toxicity Task Force which has provided input on the development of the next version of the *Enclosed Bays and Estuaries* and *Inland Surface Waters Plans*.

At the national level, the *Countywide Program* has participated in the dialogue on the long-awaited Clean Water Act reauthorization. This has included a visit to Congressional staff by the Management Committee Chair and the submittal of comments on some of the many versions of this proposed legislation.

Program Structure and Function

Existing Agreements

The *Countywide Program* has an existing "Agreement to Implement the Alameda County Urban Runoff Clean Water Program" (Agreement) that all of the participating agencies' elected bodies adopted in 1991. This Agreement will terminate on April 1, 1997, but is subject to automatic renewal for a five year period in the absence of any written objections.

One of the requirements of this Agreement was the development of the "Bylaws of the Alameda County Urban Runoff Clean Water Program's Management Committee" (Appendix D). These bylaws provide the agreed upon details for a number of essential activities that will be conducted including the following: 1) how the Management Committee and its Subcommittees function; 2) how often information on populations and areas are updated for allocating General Program costs; and 3) the procedures for developing budgets. The bylaws have been improved through the seven amendments adopted between 1992 and 1995.

The *Countywide Program* also has an existing agreement[1] with the Regional Board staff which establishes the respective roles and responsibilities of the *Countywide Program* and Regional Board staff in conducting stormwater facility inspections and educational outreach. Since this agreement's adoption in 1992, its interpretation has been clarified by letters from the *Countywide Program*. This agreement is an example of the initiative the *Countywide Program* takes to form partnerships for the coordinated and efficient implementation of its activities.

General Program and Agency-Specific Activities

The *Countywide Program*'s activities are divided into two basic categories depending on whether the General Program or member agencies are responsible for implementing the task.

General Program tasks are conducted for the mutual benefit of all of the *Countywide Program* member agencies, and member agency-specific tasks are conducted by and for the individual participating agency. The description of member agency-specific activities and responsibilities is addressed by the performance standards contained in Appendix B, the requirements imposed by the NPDES permit, and the tasks described in this SWMP. The General Program tasks are defined by this SWMP and the annual work plans and budgets contained in Appendix A.

Management Committee and Subcommittees: The Agreement provides the Management Committee with the central authority for adopting General Program budgets, establishing policies and procedures, and implementing the *Countywide Program*. The Management Committee has created six subcommittees to assist with these tasks. Many of the subcommittees have, in turn, relied on using small workgroups to evaluate issues and develop detailed recommendations for the subcommittees' consideration and approval. A list of Management Committee representatives is contained in Table 2-1. This list will be updated as needed.

Coordination with Local Agencies: Implementing any program that deals with as many diffuse sources of pollutants as stormwater depends on coordinating with other local agencies. Forming partnerships with the local wastewater treatment plants, the Alameda County Resource Conservation District, and County household hazardous waste recycling program have been essential to the progress that the *Countywide Program* has achieved to date. The Cities of Hayward, Livermore, and San Leandro operate their own wastewater treatment plants and their staff's participation has been essential in providing this perspective to the *Countywide Program*.

Funding Sources

Twelve of the seventeen member agencies have established stormwater user fees to fund their agency-specific tasks and share of the General Program costs. The Cities of Emeryville, Oakland, and Piedmont, the ACFC&WCD, and Zone 7 of the ACFC&WCD have not established these user fees. The City of Piedmont has relied on its sewer fund for revenue. Oakland has used reimbursements from the ACFC&WCD's Benefit Assessment Program fees which are supplemented with city funding. Emeryville has also relied on reimbursement from the ACFC&WCD. The ACFC&WCD relies on Benefit Assessment Program fees for revenue, while Zone 7 of the ACFC&WCD uses public taxes and drainage fees for revenue.

In addition, the *Countywide Program* has actively solicited and obtained U.S. EPA grant funds for the implementation of some of its activities. Examples of grant funded activities have included the quality assurance/quality control aspects of the initial loads assessment study completed in 1991, portions of the Demonstration Urban Stormwater Treatment (DUST) marsh studies, the study to identify the causes of stormwater's toxicity completed in 1994, and the development of a handbook on how to conduct industrial inspections completed in March 1996.

Legal Authority

In 1991 the *Countywide Program* conducted an extensive review of each municipality's legal authority and used this information to help develop a model stormwater ordinance. Alan Waltner, Attorney at Law, prepared this model

ordinance for the *Countywide Program* that has been adopted with modifications by each of the municipalities (Appendix C). These ordinances provide the municipalities with an adequate expression of their legal authority to control what is discharged to their storm drain systems and therefore to implement the requirements of the *Countywide Program*. The ordinance, as modified by Alameda County, is included in the California Stormwater Quality Task Force's Municipal BMP Handbook, and has been adapted for use throughout California.

MAJOR TASKS

The following major tasks will be conducted during the next five years.

Task 2.1 Assist with Regulatory Compliance

The purpose of this task is to provide the member agencies with the information and assistance they need to comply with their NPDES permit, and other related regulatory requirements, and to negotiate the NPDES permit and any other subsequent changes to the permit requirements. The activities included as part of this task include the following:

- Develop and provide deliverable forms to each of the member agencies that streamline the information that needs to be collected for reporting to the Regional Board as part of the NPDES permit. Forms will cover either quarterly or semiannual periods as selected by each agency. Each agency will complete and submit its reporting forms and other required information to the *Countywide Program* on time;

- Prepare NPDES permit required semiannual reports for submittal to the Regional Board by the required dates. This will include preparing draft reports for member agency review and comment prior to incorporating comments into final reports. The fiscal year-end reports will contain an evaluation of each agencies' work, including an assessment of compliance with applicable performance standards (Appendix B) along with an evaluation of the effectiveness of the activities being undertaken;

- Provide annual individual reviews of each member agencies' performance. It is anticipated that at least initially these reviews will continue to include individual meetings with each agency with a follow up letter. The optimum method of review may be refined in the future;

- Provide additional assistance to member agencies, as requested, to comply with the NPDES permit or other program requirements; and

- Coordinate with the Regional Board during renewal of the NPDES permit and any subsequent amendments.

Task 2.2 Lead and Represent the *Countywide Program*

This task is to provide essential leadership for the *Countywide Program*. This will include representing the *Countywide Program* whenever this participation is requested by a member agency or is otherwise valuable to further the goals of the *Countywide Program*. Part of providing leadership will be to identify opportunities for collaborating with other agencies, to make sure the activities of the *Countywide Program* are known and recognized, and to anticipate regulatory initiatives that affect the *Countywide Program*. The *Countywide Program*'s Management Committee Chair will usually serve as the *Countywide Program* representative, especially at BASMAA and California Stormwater Quality Task Force meetings, and

Regional Monitoring Program policy meetings.

As needed, the *Countywide Program* will develop and execute agreements between the General Program and other public agencies who are responsible for stormwater discharges that flow to storm drain systems operated by member agencies. These types of agreements will require the implementation of performance standards consistent with those applicable to member agencies.

Task 2.3 Plan, Initiate, and Respond to Regulatory and Grant Funding Initiatives

Given the continual changes to regulatory requirements[2], it is essential that the *Countywide Program* participate actively in these processes. The activities included as part of this task include the following:

- Identify, evaluate and participate in regulatory and grant funding initiatives and issues that may impact the *Countywide Program*. This will include identifying regulatory initiatives and issues that are essential to the interests of the *Countywide Program*;

- Prepare appropriate comments on essential regulatory initiatives and issues that represent the views of the member agencies. This process will normally involve the review and approval of the Policy Level Subcommittee and Management Committee;

- Present the *Countywide Program*'s agreed upon comments at public hearings and meetings, etc., as part of the public review process for regulatory initiatives and issues;

- Work through BASMAA, the California Stormwater Quality Task Force, and other organizations, as appropriate, to identify new regulatory initiatives that the *Countywide Program* should initiate and help sponsor. This also includes identifying and implementing cost-effective ways to respond within this SWMP to new water quality problems or new information about existing problems; and

- Apply for and manage grant funded projects awarded to the *Countywide Program*.

Task 2.4 Continue to Institute a Process for Continuous Improvement

This task is to make sure that the information and experience being acquired by the *Countywide Program* is used to continuously improve the implementation of the *Countywide Program*. Having this type of process in place will help achieve cost efficiencies and other benefits. The primary method used so far to improve the *Countywide Program* is to obtain suggestions from all of the participating agencies annually. These suggestions are considered and acted upon by the subcommittees and Management Committee.

Task 2.5 Provide Management Services

The purpose of this task is to provide all of the needed financial management, contracting, program management, and administrative support needed for the *Countywide Program*'s General Program. Activities include providing assistance to the Management Committee and Policy Level Subcommittee and financial support for BASMAA tasks of regional benefit. This task also includes conducting fiscal analysis, tracking and reporting on budget expenditures and tasks' status, processing accounts receivable and payable, and assisting with the preparation of each year's General Program budget.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Maximize Regulatory Certainty

The best way to minimize the uncertainties inherent in any regulatory compliance program is to anticipate possible problems and identify ways to prevent or correct them as quickly as possible. The *Countywide Program* General Program will continue to emphasize achieving open communication with the Regional Board staff and with its member agencies to address new regulatory initiatives in a way that maximizes the degree of certainty associated with implementing this SWMP. Some of the *Countywide Program's* creative solutions to help prevent potential problems, such as developing performance standards, are being copied by other stormwater programs.

Continue to Identify Ways to Minimize Costs

The *Countywide Program* needs to continue to identify ways to make the General Program and municipality-specific program more cost-effective. One of the strategies for doing this is to identify where each activity can be most cost-effectively implemented. Some activities can be handled best at the regional level by working with other stormwater agencies, such as BASMAA, other activities are best conducted at the local agency-specific level, and others are best done at the General Program level.

Continue to Improve by Taking a Flexible Approach Within the SWMP's Structure

One of the lessons learned with the previous SWMP is the value to taking a flexible, but structured implementation approach that iteratively improves the *Countywide Program* based on practical experience. The whole structure of the five-year plan with annual work plans captures this approach for continuous improvement of the SWMP.

Notes:

1. "Memorandum of Understanding to Coordinate Industrial/Business Storm Water Pollution Control Activities Conducted by the Alameda County Urban Runoff Clean Water Program and the California Regional Water Quality Control Board San Francisco Bay Region", June 1992.

2. See Appendix E for a summary of relevant regulatory programs and policies.

TABLE 2-1
MANAGEMENT COMMITTEE REPRESENTATIVES

Member Agency and Address	Representative Name and Phone Number	Alternate Representative
City of Alameda 2263 Santa Clara Avenue, 94501	Jim Sanderson 510-748-4520	Laura Timothy 510-748-4626
City of Albany 1000 San Pablo Avenue, 94706	Bill Ekern 510-528-5720	Diamera Bach 510-528-5766
City of Berkeley 1326 Allston Way, 94702	Shirley Kook 510-644-6137	
City of Dublin P.O. Box 2340, 94568	Mehran Sepehri 510-833-6630	
City of Emeryville 2200 Powell Street, 94608	Karen Hemphill 510-596-4306	Maurice Kaufman 510-596-4334
City of Fremont 39550 Liberty Street, 94537	Norm Ploss 510-494-4699	Richard Asimus 510-494-4693
City of Hayward 3700 Enterprise Avenue, 94545	Alex Ameri 510-293-5252	Joseph Lucia 510-881-7960
City of Livermore 101 W Jack London Blvd, 94550	Bill Adams 510-373-5230	Darren Greenwood 510-373-5233
City of Newark 37101 Newark Blvd, 94560	Willem Wolbertus 510-790-7207	Barbara Lathrop 510-790-7270
City of Oakland 1333 Broadway, 94612	Mike Neary 510-238-6659	Ana Ward 510-238-7116
City of Piedmont 120 Vista Avenue, 94611	Larry Rosenberg 510-420-3050	Kristin Johnson 510-420-3050
City of Pleasanton 3333 Busch Road, 94566	Steve Cusenza 510-484-8064	Garry Lee 510-484-8065
City of San Leandro 14200 Chapman Road, 94578	Bob Taylor 510-577-6020	Tomi Kinsey 510-577-6022
City of Union City 34009 Alvarado-Niles Road, 94587	Jay Swardenski 510-471-3232	Carl Howard 510-471-3232
Alameda County FC&WCD 951 Turner Court, Hayward, 94545	Robert Hale 510-670-5563	Jim Scanlin 510-670-6548
Alameda County unincorporated 951 Turner Court, Hayward, 94545	Carla Schultheis 510-670-5576	Richard Wetzig 510-670-6478
Alameda County FC&WCD, Zone 7 7041 Koll Center Parkway, Pleasanton, 94566	Vince Wong 510-484-2600	Yan Kee Chan 510-484-5805

SECTION 3

Focused Watershed Management Approach

GOALS

The need to identify better ways to solve environmental problems than the traditional command and control regulatory approach is most evident when dealing with diffuse sources of pollutants and environmental degradation, such as stormwater. These types of problems are often difficult to correct, given the numerous causes of the problems and the diverse interests that must be reconciled to achieve solutions.

The U.S. EPA, Regional Board, and other groups believe that the watershed management approach provides a useful tool for solving environmental problems. The watershed management approach is defined by the U.S. EPA as having the following three major components: problem identification, stakeholder involvement, and integrated actions. This approach is characterized by identifying and solving particular priority problems in specific watersheds. In any given watershed, the priority problems will vary and may involve stormwater to a lesser or greater extent. The watershed management approach is based on principles similar to the Coordinated Resources Management and Planning (CRMP) process that the Natural Resources Conservation Service (formerly the Soil Conservation Service) has successfully used for years.

Although this section of the SWMP is new, the previous SWMP and other sections of this SWMP, in essence, constitute a watershed management approach. Specific watershed activities are identified in this section to focus on some of the more tangible aspects of this approach which are not specifically addressed by other sections of the SWMP.

The three primary goals of this component include the following:

- Determine the tangible benefits of using a focused (waterbody-specific) watershed management approach in urbanized watersheds;
- Increase the level of awareness of the residents in each municipality of their local neighborhood watersheds; and
- Build grass roots stewardship for local creeks, estuaries and lakes by supporting cleanup, aquatic habitat protection, and restoration projects.

EXISTING CONDITIONS

As shown in Figure 1-1, major open or partially open creeks in Alameda County which flow directly to San Francisco Bay include Cerrito, Codornices, Strawberry, Sausal, San Leandro, San Lorenzo, and Alameda Creeks. Many other creeks also exist or have existed historically prior to urbanization and creek channelization and culverting. Recent community activism has led to restoration or rehabilitation of portions of several creeks including daylighting sections, stabilizing creek banks, sponsoring creek cleanups, and promoting watershed awareness. Examples of the General Program, municipality-specific, and ACFC&WCD efforts to promote these types of activities are described below.

General Program Projects

Disposal of Wash Waters

The *Countywide Program* identified a

solution to the problem of wash water disposal by combining pollution prevention and watershed management approaches. The simplest solution is to cease generating the wash water in the first place, and the next best solution is to recycle wash water. When wash waters must be generated that cannot be recycled, it is better, generally, from a watershed perspective to dispose wash waters to the sanitary sewer than to the storm drain system.

The ability to see all sides of the wash water disposal problem and to develop an agreed upon solution was achieved by the *Countywide Program* working with the wastewater treatment plant agencies, Regional Board staff, and the Cleaning Equipment Trade Association to develop the "Recommended Discharge Elimination/Disposal Priorities for Wash Waters." This work also led to the Cleaning Equipment Trade Association's development of its "Best Management Practices for Waste Water Runoff." Work on wash water disposal that the Santa Clara Valley Nonpoint Source Pollution Control Program completed also contributed to a solution.

Identification of Current Watershed Projects

The *Countywide Program* conducted a survey to identify projects in Alameda County that it may have an interest in participating in as a stakeholder or tracking to avoid duplication of efforts. Among these projects the Department of Fish and Game's and U.S. Fish and Wildlife Service's Biodiversity Working Group and the Seasonal Wetlands Enhancement Committee's activities to restore wetlands in Union City may be worth tracking by the *Countywide Program*. The results of this work culminated in a plan for integrating the watershed management approach in the *Countywide Program* Management Plan, distributed to the Management Committee in September 1995.

Pilot Citizen Monitoring and Habitat Assessment Project

The *Countywide Program* supported the training of volunteers to conduct water quality monitoring and aquatic habitat assessment of San Leandro Creek. The goal of this project was to test the applicability of three protocols developed by other entities for use in Alameda County and by citizen volunteers.

The project was conducted with the assistance of 35 volunteers from the Friends of San Leandro Creek. Over a ten-week period in 1995 the volunteers measured water quality at four locations along the lower third of the creek, assessed fish habitat, and conducted bird counts.

Community Stewardship Grants

The General Program also awarded Community Stewardship Grants for creek education, inventorying, and monitoring projects located on nine different creeks throughout the county. Many of the grants have been awarded to schools ranging from the elementary through college level. One example of an elementary school project in Berkeley is to study and observe wildlife in and around Codornices Creek using science, writing, art, and history. A high school in Castro Valley will be conducting water quality monitoring and research on San Leandro Creek. At the college level, members of the Geography Awareness and Environmental Action Club at California State College in Hayward will lead monthly interpretive/mapping surveys of San Lorenzo Creek to teach students how to monitor water quality, map riparian habitat, and identify different types of wildlife. All of the individual grant projects were $2,000 or less.

Municipality-Specific Projects

Many of the municipalities have supported creek clean up and restoration projects being implemented by citizen volunteers. In recent years, Alameda County, Albany, Berkeley, Dublin, Fremont, Hayward, Oakland, Piedmont, Pleasanton, and San Leandro have conducted these type of events. One of the largest events has been the City of Oakland's creek cleanups on five to six different creeks during 1994 and 1995. The City of Albany is spearheading improvements to Codornices and Cerrito Creeks by working with local volunteers and the other cities (Berkeley, El Cerrito, Kensington and Richmond) within these watersheds. In addition, several municipalities also support the Coastal Commission's Annual Coastal Cleanup Day.

ACFC&WCD Projects

The ACFC&WCD recognizes that there are benefits for it to participate actively in watershed management projects as part of a comprehensive and integrated approach for achieving flood control, improving stormwater quality, and protecting aquatic resources. One of the possible benefits for using this approach would be to increase the certainty of obtaining U.S. Army Corps of Engineers (COE) permits and Regional Board water quality certifications for maintenance activities and other projects. Regulatory oversight of maintenance of flood control channels and water quality is merging as the Regional Board is being delegated authority from the COE under a pilot project to issue Nationwide Permits.

Some of the projects that the ACFC&WCD supports include the San Leandro Creek Watershed Awareness Program; the Southern Alameda Creek Watershed project; the San Lorenzo/Castro Valley Creeks Watershed project; preparation of the *Guide to East Bay Creeks* and a companion map for Southern Alameda County; a Clean Creeks Campaign for Zone 12 (Oakland/Emeryville) and a friends of Sausal Creek group which has been initiated with the City of Oakland. These are the type of start-up projects that the Regional Board staff will be requiring of major flood control agencies; the Regional Board staff require that flood control agencies solve flood control, water quality, and aquatic resource problems in a more comprehensive and integrative, watershed-based fashion.

MAJOR TASKS

The following major tasks will be conducted during the next five years. In addition, other parts of the SWMP contain watershed-related tasks that will be coordinated to achieve the goals of this and other sections of the SWMP. Refer to "Task 5.3 Support Watershed-Based Approaches" in the Public Information/Participation section of this SWMP and to the performance standards for Public Information/Participation (Appendix B) for descriptions of other related tasks.

Task 3.1 Participate in Watershed Management Projects Led by Others

The *Countywide Program* will seek out information and track watershed management projects that other agencies and parties have the lead on and participate in a selected subset of these projects to represent the *Countywide Program*'s perspective and interests. The participation will include such things as attending meetings, briefing the *Countywide Program* on issues, and soliciting direction from the *Countywide Program* through its Management Committee and Subcommittees.

Task 3.2 Prepare for, Conduct, and Complete a Pilot Watershed Project

The pilot watershed project will be conducted in the San Leandro Creek

watershed for the following reasons: 1) rainbow trout were initially identified in the creek and there is a lot of local interest in the watershed, such as that expressed by the Friends of San Leandro Creek group; 2) a number of successful watershed awareness activities have been completed there, including the *Countywide Program*'s Pilot Citizen Monitoring and Habitat Assessment Program; 3) the watershed includes multiple political jurisdictions which is typical of most of the larger watersheds in Alameda County; 4) the watershed contains the type of problems that are characteristic of much of Alameda County; and 5) the ACFC&WCD plans to sponsor the development of a CRMP for the watershed and is interested in and willing to use its resources to assist with improvements to the watershed.

This project will consist of the following elements:

- Continue to identify water quality and aquatic habitat problems in the San Leandro Creek watershed using citizen volunteers and other appropriate methods;

- Identify a specific pilot project to be implemented in a portion of San Leandro Creek to correct a high priority water quality and/or aquatic habitat problem;

- Implement the specific pilot project to achieve tangible and observable improvements before the completion of this SWMP in June 2001. The ACFC&WCD will play a key role in providing fiscal and other resources needed to implement any capital improvement parts of the pilot project;

- Based on the pilot study, the General Program will develop a written report summarizing the results of the pilot project. This report will include an assessment from the member agencies' perspective of the pros and cons of using a watershed management approach for correcting water quality and aquatic habitat problems. This assessment will include recommendations for future work, if any; and

- On an annual basis, the results of the progress being made by the pilot study will be reviewed to identify potential opportunities to improve any aspect of the *Countywide Program*; identified opportunities will be implemented by the *Countywide Program* as part of the subsequent year's annual work plan and/or through modifications to the performance standards.

Task 3.3 Identify Approach for Further Incorporating Focused, Waterbody-Specific Watershed Management into the *Countywide Program* As Part of the Subsequent SWMP

Based on the results of the *Countywide Program*'s participation in watershed management projects led by others, the information generated during the pilot study, and other sources of information, the Management Committee will decide how to expand the focused watershed management approach in the subsequent SWMP (July 2001 - June 2006).

Task 3.4 Reporting and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. The General Program will complete these items under the guidance of the Monitoring and Special Studies Subcommittee. Any substantive policy issues that this Subcommittee identifies will be forwarded to the Policy Level Subcommittee and the Management Committee, as needed.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes determining how well a focused watershed management approach may help achieve improvements in urbanized watersheds as required of stormwater management programs. This testing period will be accomplished in the following two ways:

Participate as a Stakeholder in Watershed Projects Led by Others

One of the ways for the *Countywide Program* to represent its interests and to gain experience with the watershed management approach is to participate as a stakeholder in other watershed projects. The opportunities for this type of participation should be increasing as the number and variety of these type of projects appear to be increasing. The results of the *Countywide Program's* stakeholder experience will be one basis for determining how a focused watershed management approach should be incorporated into the subsequent SWMP beginning in July 2001.

Conduct a *Countywide Program* Led Watershed Management Pilot Project

The possible benefits of achieving tangible improvements in water quality and/or aquatic habitat will be tested in a specific area during the pilot project. The scope of the pilot project will be scaled to a size that is appropriate for what can realistically be accomplished during the time period of this SWMP. The concept is to really identify how to make a focused watershed management approach work.

SECTION

Monitoring and Special Studies 4

GOALS

Monitoring and special studies have a major role in the development and implementation of a successful SWMP. Because stormwater regulations are relatively new, understanding of the exact nature of the problems caused by stormwater runoff as well as the sources of and BMPs for control of suspected pollutants is evolving. The role of monitoring and special studies is to identify specific problems or concerns caused by stormwater runoff in order to better identify sources of specific pollutants and optimize BMPs and performance standards for their control.

The primary goals of this component include the following:

- Identify problems in San Francisco Bay and Alameda County creeks resulting from stormwater runoff;
- Identify the effectiveness of and ways to improve BMPs;
- Integrate results of monitoring and special studies into BMP implementation;
- Track long-term trends in pollutant concentrations in representative creeks;
- Coordinate with BASMAA, the California Stormwater Quality Task Force, San Francisco Estuary Institute (SFEI), and others to develop an equitable division of monitoring and special studies work; and
- Coordinate with the Public Information/Participation Subcommittee and other subcommittees for technology transfer.

EXISTING CONDITIONS

Environmental Setting - San Francisco Bay and Alameda County Creeks

Monitoring of San Francisco Bay and Alameda County creeks has been conducted by the Regional Board and Alameda County for a number of years. The key results of these investigations are summarized below:

San Francisco Bay

The Regional Monitoring Program (RMP) conducted for the Regional Board by SFEI has indicated that concentrations of organochlorine pesticides (total DDT, chlordane, dieldrin) and polychlorinated biphenyls (PCBs) in water exceed water quality objectives designed to protect human health from fish consumption. In response to these data, the Regional Board conducted a study of chemical concentrations in fish tissues to determine if the exceedances of water quality objectives corresponded to a human health risk for individuals consuming fish from the Bay. Results of the *Fish Tissue Study* indicated levels of PCBs, mercury and dioxin/furans often exceeded U.S. EPA screening values for protection of human health, and identified organochlorine pesticides as being of concern. As a result, the Department of Health Services issued a health advisory for San Francisco Bay recommending limited consumption of certain species of fish and recommending no consumption of

sharks and specific species of fish over a certain length.

Alameda County Creeks Wet Weather Monitoring: The *Countywide Program* has been conducting water quality monitoring of urban runoff since September 1988 to fulfill the requirements of the Regional Board's *Basin Plan*. In addition to wet weather monitoring of creeks, specific locations characteristic of stormwater runoff from known land uses were also sampled. Results indicated that total (dissolved and particulate) copper and zinc concentrations in creeks and upland areas (if these concentrations were experienced in downstream waters) generally exceed the acute and chronic water quality objectives for the protection of aquatic life.

Recently the U.S. EPA, in recognition of the fact that dissolved metals are the major metal form which are toxic to aquatic life, promulgated revised interim final dissolved metals criteria. Consequently, wet weather water quality generally attains the revised water quality criteria. For most creeks, the number of exceedances of acute criteria is within the allowable exceedance frequency of once every three years. When the data are compared to the chronic criteria, lead exceeds the allowable exceedance frequency for four of the five monitored creeks.

Regarding exceedances of water quality objectives for the protection of human health, total mercury and total polycyclic aromatic hydrocarbons (PAH) concentrations often exceed the human health based criteria for fish consumption (concentrations in water that are expected to result in fish tissue concentrations exceeding U.S. EPA screening values for one in a million cancer risk). (The *Countywide Program* monitors for PAHs using specialized laboratory techniques designed to detect low concentrations, parts-per-trillion, of individual PAH compounds.) Because storm events are transitory, it is not clear if the exposure duration of fish to stormwater runoff is sufficient to allow accumulation of mercury and PAHs in tissues to levels above the screening values. Also, Alameda County creeks are not major fisheries. Lastly, estimates of dissolved PAH concentrations are generally below human health based objectives based on consumption of fish. (U.S. EPA guidance states that mercury criteria should be compared with total concentrations.)

Toxicity monitoring has been conducted by the *Countywide Program* since 1988. Results indicate that runoff is generally toxic to aquatic invertebrates (*Ceriodaphnia dubia*), often causing mortality within four days of exposure. In conjunction with the Regional Board, the *Countywide Program* conducted Toxicity Identification Evaluations (TIE) to determine what compounds were causing toxicity. Results of the TIEs indicated the toxicity was caused by organophosphate insecticides specifically diazinon and chlorpyrifos.

Dry Weather Monitoring: As a part of monitoring conducted for the *Loads Assessment Study* (1988-1991), data on dry weather water quality in selected creeks was collected and compared to chronic water quality objectives for the protection of aquatic life. Results of the comparison indicated that during dry weather, total metal concentrations were generally substantially below chronic water quality objectives for most of the six creeks tested. Occasional exceedances of total copper and lead water quality objectives were observed at one station (Cabot Avenue). In general, dry weather water quality was much better than wet weather.

Sediment Sampling: Dry weather sediment sampling was also conducted as part of the *Loads Assessment Study* in selected creeks. Results indicated organochlorine pesticides, chlorinated herbicides, PCBs, and PAHs, which are seldom detected in water, were often found at detectable concentrations in sediment. Concentrations of metals in sediment were generally at least an order of magnitude lower than hazardous waste (Total Threshold Limit Concentrations or TTLC) levels.

Recently the ACFC&WCD has been conducting investigations of diazinon concentrations in creek sediments and in the DUST marsh. Results of these investigations found diazinon at detectable concentrations in sediments following storm events.

General Findings - Stormwater Impacts and Pollutants of Concern

The following summarizes the results of monitoring conducted by the *Countywide Program* and other agencies during the past seven years:

Stormwater Impacts on San Francisco Bay

- Loads of certain metals (cadmium, copper, lead, nickel) from stormwater are significant compared to point source discharges.

- A portion of particulate bound copper discharged during storms may be released to the Bay due to the higher pH of San Francisco Bay water.

Stormwater Impacts on Alameda County Creeks

- Concentrations of organophosphate insecticides in stormwater runoff, specifically diazinon and chlorpyrifos, often cause toxicity to *Ceriodaphina dubia* during laboratory toxicity testing and thus have the potential to cause adverse impacts to freshwater aquatic life;

- Concentrations of mercury and PAHs in stormwater have the potential to accumulate in fish tissue to levels above U.S. EPA screening values for one in a million lifetime cancer risk.

- In creeks with a high percentage of urban watershed (Castro Valley Creek - creek station S3, and Cabot Avenue near the Hayward Marsh - creek station S4), dissolved metals concentrations (copper, lead and zinc) exceed interim final chronic dissolved metal water quality criteria indicating the potential for impacts to aquatic life.

Based on these findings, diazinon, chlorpyrifos, copper, lead, zinc, mercury, PAHs, and organochlorine pesticides are principle pollutants of concern.

Monitoring and Special Studies

The current phase of the monitoring program began in October 1991 to fulfill the requirements of the *Countywide Program*'s NPDES permit. The monitoring program involves the following different types of monitoring and special studies:

Long-Term Creek Monitoring
This type of monitoring is used to determine how water quality in creeks compares to water quality objectives contained in the Regional Board's *Basin Plan*, the State Board's previous *Inland Surface Waters Plan* and Federal water quality criteria documents. In addition, long-term creek monitoring data can provide indications of pollutant sources and trends in pollutant concentrations. Creek flow and water quality at two to four stations have been monitored during

the initial NPDES permit period using equipment configured to collect flow-weighted composite samples. Results are reported in annual monitoring reports. In addition to gathering data, the *Countywide Program* also developed guidance for reporting toxicity data which is used to standardize the way data are reported by the laboratory to ensure maximum usability, and compiled its data into a water quality, toxicity and hydrology database.

Receiving Water Impacts Studies
Receiving water impact studies are used to determine the impact of specific pollutants on creeks and San Francisco Bay. If a particular pollutant is indicated as causing an adverse impact, sources of the pollutant are investigated and control measures developed to limit the input of the pollutant to the receiving water. Receiving water impact studies have been conducted using data collected in the long-term creek monitoring program through data analysis and toxicity testing. Toxicity testing is an example of an impact study which identified an impact (toxicity to *Ceriodaphia*) and conducted a TIE to determine the cause of the toxicity. Subsequent to the identification of diazinon and chlorpyrifos as the cause of toxicity, the *Countywide Program* has been participating in a coordinated pilot source identification and control study implemented by the Regional Board. The *Countywide Program* has also completed geochemical modeling of copper adsorption to estimate how much copper may be released from particulates upon discharge to San Francisco Bay.

Source Identification Studies
Identifying sources of pollutants to stormwater runoff is key to identifying effective control measures. During the initial NPDES permit period, the *Countywide Program* has spent considerable effort in identifying sources of specific pollutants to stormwater. Results of these studies are used to help select control measures for control of specific pollutants. Specific studies conducted include: a literature review of source identification data, a pilot source identification study of an industrial and residential area, TIEs, a *Roof Runoff Water Quality Literature Review* report, and a *Watershed Source Evaluation Method* report for the Sausal Creek watershed in Oakland.

Evaluating the Effectiveness of Control Measures
This type of monitoring is designed to complement the record keeping and reporting procedures summarized by providing data on the effectiveness of different control measures in order to select those that are most effective. During the initial NPDES permit period, the *Countywide Program* conducted the following studies on the effectiveness of control measures: *Storm Inlet Pilot Study*, *Vegetated Channels Study*, DUST Marsh Special Study, *Street Sweeping/Storm Inlet Modification Literature Review*, and *BMP Effectiveness Monitoring*; in an industrial catchment.

MAJOR TASKS

The following major tasks will be conducted during the next five years.

Task 4.1 Track and Coordinate with the RMP and BASMAA

The purpose of this task is to track and coordinate with other monitoring programs being conducted in the Bay Area. Currently the RMP conducts routine water, sediment and biological monitoring of San Francisco Bay. In addition, the RMP also conducts special studies and pilot projects. The *Countywide Program* will coordinate with the RMP to ensure questions relevant to

stormwater runoff and its effects on San Francisco Bay are not left out of the RMP.

The *Countywide Program* will also participate in BASMAA's Monitoring Committee. The BASMAA Monitoring Committee is used to coordinate routine monitoring and special studies among other Bay Area programs and has been involved in development of standardized monitoring protocols and compilation of special studies. One goal of this task will be to ensure an equitable distribution of monitoring and special studies work to all stormwater agencies in the Bay Area.

Task 4.2 Long-Term Creek Monitoring

The *Countywide Program* will continue to conduct long-term creek monitoring at selected locations in Alameda County. This activity will be coordinated with the BASMAA Monitoring Committee as the goal is to generate compatible data for the entire Bay Area which may be used to determine pollutants of concern in stormwater runoff. Selection of stations, monitoring methods, and parameters will be discussed with the Regional Board staff prior to submission of the annual work plan.

Task 4.3 Special Studies

Special studies continue to be conducted as necessary to support refinement and implementation of the SWMP. Specific types of special studies include the following:

Task 4.3.1 Special Studies Needs Assessment
The Monitoring and Special Studies (MSS) Subcommittee will coordinate with other subcommittees to determine what special studies are needed to support selection or refinement of control measures or performance standards. This task will be conducted on an annual basis.

Task 4.3.2 Effectiveness of Structural Treatment Measures
The *Countywide Program* will continue to conduct studies of the effectiveness of structural control measures. Currently the ACFC&WCD is considering construction of a wetlands treatment system in the City of Fremont (Tule Pond). The *Countywide Program* will evaluate this proposed project and participate in planning the monitoring of its effectiveness. The *Countywide Program* will also conduct studies of the effectiveness of other structural control measures, such as modified channel maintenance activities and storm drain inlet or storm drain line controls as requested by the New Development or Maintenance Subcommittees.

Task 4.3.3 Effectiveness of Other BMPs
The *Countywide Program* will conduct special studies to monitor the effectiveness of other non-structural BMPs implemented by other program components. Examples of non-structural BMPs include public and industrial outreach activities, product use modification or substitutions, and changes in maintenance activities or frequency.

Task 4.3.4 Source Identification and Control
The *Countywide Program* will conduct source identification and control studies to identify sources of problem pollutants and determine potential control measures. Potential activities include determining sources and control options for diazinon and chlorpyrifos, and investigating sources of PCBs and organochlorine pesticides or other problem pollutants as identified by receiving water impacts studies.

Task 4.4. Data Management

Data from the annual long-term monitoring including water quality, sediment, toxicity and hydrology data will be incorporated into a database. In order to facilitate coordination with other agencies conducting stormwater monitoring and special studies, the *Countywide Program* will continue to coordinate with BASMAA in its compilation of study descriptions and results into an annotated bibliography by providing brief abstracts of project results as they are completed. Additionally, data will be provided to SFEI for integration into the BASMAA and RMP databases, as requested.

Task 4.5 Reporting and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. Results of the annual long-term stream monitoring will be reported to the Regional Board by October 1. This data report will include comparisons with applicable water quality objectives. Reports on special studies will be submitted to the Regional Board in a timely manner as the studies are completed.

IMPLEMENTATION STRATEGY

Implementation of this component relies on coordination with other *Countywide Program* subcommittees to provide them with information on the results of monitoring and special studies and to determine their needs for additional special studies. The development of annual work plans will enable the *Countywide Program* to define priorities each year as information is gained from implementation of performance standards and the RMP.

In addition, the MSS Subcommittee and *Countywide Program* will continue to coordinate with BASMAA, Regional Board staff and other agencies involved in studies of San Francisco Bay to determine pollutants of concern and help set priorities for monitoring and special studies.

SECTION 5

Public Information/Participation

GOALS

Stormwater pollution results from the small, incremental, and collective activities of everyone within Alameda County. The diffuse origins of the problem are often the result of the unintended and unrecognized consequences of thousands of routine, seemingly inconsequential, decisions made daily. Public Information/ Participation (PI/P) is one of the keys to preventing stormwater pollution. The better everyone understands what causes stormwater pollution and the simple things that we can do about it, the cleaner our local creeks and San Francisco Bay will become.

The two primary goals of this component include the following:

- Educate and encourage residents to adopt less polluting and more environmentally beneficial behavior; and

- Increase awareness of local watersheds and solicit volunteers to help solve creek specific problems and restore creeks.

EXISTING CONDITIONS

This section of the SWMP summarizes what PI/P accomplished during the initial NPDES permit period.

PI/P has been a particularly pro-active component of the *Countywide Program*. The PI/P Subcommittee was established in May 1991, prior to the adoption of the first NPDES permit, and has met nearly every month since. The PI/P Coordinator, employed by the Alameda County Public Works Agency, serves as General Program staff for implementing the PI/P component. Based on direction from the PI/P Subcommittee, the PI/P Coordinator is responsible for managing consultant contracts, representing the *Countywide Program* on BASMAA's and the California Stormwater Quality Task Force's PI/P Committees, interacting with the media, and providing other needed services. The PI/P Subcommittee's chairperson is responsible for running the Subcommittee meetings, communicating with the Management Committee, and working with the PI/P Coordinator to implement the Subcommittee's decisions.

Materials Produced and Distributed

General Program

The *Countywide Program* has developed or adapted more than 40 different types of PI/P materials including brochures, flyers, a mylar stencil, public service announcements for use on the radio, posters, give-away promotional items, guidance materials, and other items. In addition to items that the *Countywide Program* has taken the lead on, a number of educational materials have been developed recently through the *Countywide Program*'s participation in BASMAA and the San Francisco Bay Area Pollution Prevention Group. Several of the most important of these materials are briefly described below.

The *Countywide Program* began in 1991 by adapting the Santa Clara Valley brochure called "The Bay Begins at Your Front Door!" for use in Alameda County. This is a basic brochure to inform residents about the sources of stormwater pollution and simple things they can do to help prevent it. More copies of this brochure have been printed and

distributed than any other item.

Another important brochure developed and printed was the "Bugged?" brochure on integrated pest management. This brochure offers residents information on safe and effective ways to deal with unwanted pests. It has been distributed both as a point-of-purchase item and to residents at outreach events and in response to telephone requests.

Municipality-Specific Program

Municipalities have been actively targeting their own residents with information on the sources of stormwater pollution and things they can do to help prevent it. More than 280,000 pieces of informational materials were distributed to residents and businesses during the first four years of the *Countywide Program*. Municipalities have also been labeling storm drain inlets. Since the beginning of the *Countywide Program*, about 25,000 stencils or 60 % of all storm drain inlets have been labeled with the no dumping message. The public education benefits of stenciling are greatest when they are installed by volunteers or elected officials. The emphasis on stencilling is justified considering that "the stencil program was by far the most readily recognized element" of the stormwater program based on the *Countywide Program*'s February 1994 public awareness survey.

Educational Programs

The *Countywide Program* has placed a high priority on training teachers and students about stormwater pollution and ways to help alleviate the problem. The areas of emphasis include the education of teachers through the award winning "Kids in Creeks" program developed for the *Countywide Program* by SFEI. More than 200 teachers have been trained on how to educate students about creeks.

During the last two years the *Countywide Program* has complemented the Kids in Creeks teacher training with the direct classroom instruction offered by the Bay Saver Club. The Alameda County Resource Conservation District developed the Bay Saver Club in 1994 for the *Countywide Program*. The Bay Saver Club includes a flexible week-long in-class program for fourth graders. The instruction was well-received by the approximately 3,500 students who participated the first year.

Another educational activity that *Countywide Program* has helped support each year is the annual Bay Area Environmental Education Resources Fair for educators. In addition, the *Countywide Program* has also actively provided grants for educational activities related to stormwater pollution. This grant program has changed from being a purely teachers action grant program to becoming the Community Stewardship Grant program. For example, in FY 1994/95 a total of $16,000 was allocated to eleven projects. These included creek education, resource inventorying, and monitoring projects on nine different creeks.

Advertising and Media Relations

The *Countywide Program* has conducted advertising campaigns during several months in 1991, 1992 and 1994. The campaigns consisted of newspaper and, in some cases, billboard advertising. The 1994 campaign was the most elaborate with the inclusion of busboards.

While the basic "no-dumping" message conveyed in the advertising campaigns made for good copy, it also may have targeted a small audience. For example, less than 1 percent of the residents surveyed in another Bay Area county (no data were available from Alameda County) in 1994 confessed to actually dumping materials directly into gutters and storm drains. It is possible that many

residents may have ignored negative information that they viewed as irrelevant to their behavior.

The *Countywide Program* has been actively implementing a media strategy since FY 1993/94. This included developing and distributing press releases at least every other month and press kits. In addition, the PI/P Coordinator has conducted dozens of interviews on various radio and television stations. Several million total audience impressions have resulted from the press releases and radio and television broadcasts.

Regional Advertising Campaign

The BASMAA member agencies formally recognized the benefit of working jointly on some types of PI/P activities by creating a PI/P Committee in 1992. One of the benefits of the Committee has been to help stormwater agencies share information and PI/P products. Another of the high priority activities of this Committee has been to develop and implement a three year regional radio and television advertising campaign beginning in FY 1995/96. This is an excellent area for regional collaboration because radio and television advertising are prohibitively expensive for any individual stormwater program to fund on its own.

The content of the regional advertising campaign will re-enforce the basic messages that the *Countywide Program* has been conveying over the last five years. The goal of the first year of the three year regional advertising campaign (FY 1995/96) is to bring the issue of stormwater pollution to the public's attention; the goal of the second year is to focus on residents and what they are doing in the home and garden; and the goal of the third year is to target car-generated stormwater pollution.

Performance Standards for Municipalities

The performance standards for PI/P were developed by the PI/P Subcommittee and approved by the Management Committee in December 1995.

Measurable Accomplishments

The *Countywide Program* has made good progress in educating its residents about stormwater pollution. According to the February 1994 survey, approximately 22 percent of the residents either did not know where stormwater flows or mistakenly believe that it is treated before going to San Francisco Bay. Information on the level of understanding at the beginning of the *Countywide Program* is unavailable, but comparisons with the results from other public awareness surveys are useful. In March 1994, the Contra Costa Clean Water Program found that 75 percent of its residents either did not know where stormwater goes or believed it is treated before being discharged. This program was initiated about two years after the *Countywide Program*. After having a stormwater NPDES permit since 1990, the City of Sacramento found in July 1994 that 44 percent of its residents still "think that stormwater runoff is treated or are undecided."

Another major measurable accomplishment of the *Countywide Program* has been the percentage of the public who reported a change to less polluting behavior. This group increased from 21 to 29 percent of the residents over the course of the 1994 advertising campaign. Another 27 percent of the residents reported that they have always been careful about the way they handle pollutants.

In addition, there is anecdotal information from municipal maintenance personnel that storm drain inlets are being used less often as dumping places, and that the

dumping of trash and debris into creeks has decreased.

MAJOR TASKS

The following major tasks will be conducted during the next five years.

5.1. Implement Targeted Outreach

This task includes the following five basic steps:

- Identify a subject area to work on;
- Conduct market research to identify effective target messages and audiences;
- Develop a focused campaign;
- Implement the focused campaign; and
- Use public awareness surveys as one way to measure progress.

This sequence of steps will be largely completed twice during the next five years.

The first subject area that the *Countywide Program* has selected is residential yard and garden care. Residential yard and garden care is an appropriate subject for the following reasons: 1) it is a logical extension of the direct "no dumping" message to the more indirect and chronic discharges of pesticides, fertilizers, yard waste, and soil associated with yard and garden care or lack of care; 2) according to special studies conducted by the *Countywide Program*, the toxicity found in stormwater is primarily caused by pesticides; 3) it responds to a high priority problem identified by the Regional Board staff; 4) it is a primarily a residential issue which has been the focus of the PI/P component of the SWMP; 5) it is an extension of the "Bugged?" brochure and the pesticide and fertilizer performance standards developed by the Parks and Recreation Workgroup; and 6) it can lead to other related subject areas, such as commercial yard and pesticide control and storm-water pollution prevention practices applicable to golf courses.

Market research on residential yard and garden care will be conducted in FY 1995/96 and used to develop and implement a focused campaign during Year 1 of the SWMP. The second subject area will be identified in Year 2 for market research and development of a focused campaign in Year 3. The second campaign will begin in Year 4 and continue into Year 5. The public awareness survey of the second campaign may not be completed until Year 6.

Task 5.2 Continue to Re-enforce Existing General Outreach Messages

Existing PI/P materials that the PI/P Subcommittee determines are useful enough to continue in circulation will be updated, as needed, and re-printed or produced for each municipality to distribute. This task will also include the General Program's public relations activities, if any; the development and distribution of promotional materials that the PI/P Subcommittee decides are useful; and the PI/P Coordinator continuing to represent the *Countywide Program* by participating in the County Fair and other events.

Task 5.3 Support Watershed-Based Approaches

This task includes the PI/P Coordinator supporting the public education and information aspects of implementing watershed-based approaches including the solicitation of volunteers to protect, clean, and restore local creeks and watersheds. This task also complements the "Watershed Awareness" section of the performance standards.

Task 5.4 Evaluate Effectiveness

PI/P will continue to use easily measurable survey tools to measure its effectiveness and to help direct limited resources where they will do the most good. The timing and type of surveys that will be conducted are included as part of Task 5.1. As useful, the PI/P Coordinator may continue to track the number of telephone calls received by the General Program and the type and number of materials distributed based on these calls.

Task 5.5 Implement and Update Agreed Upon Performance Standards

Each agency will implement the PI/P performance standards, contained in Appendix B, as part of its compliance with the stormwater NPDES permit. The PI/P Subcommittee and Management Committee will review and update annually, as needed, the performance standards for PI/P.

Task 5.6 Assist with Focused Staff Training

The PI/P coordinators for each municipality will be provided information on how to stay informed on the basic stormwater pollution prevention information being developed both outside the *Countywide Program* and within the *Countywide Program* (especially through monitoring and special studies). On an annual basis, the PI/P Subcommittee will help identify and prioritize the training needs of PI/P staff, and the optimum ways to meet these needs. Any agreed upon training activities will be implemented.

Task 5.7 Seek Partnerships, Build Coalitions, and Provide Educational Support

The primary partnerships *Countywide Program* has established are with BASMAA member agencies and the California Stormwater Quality Task Force. These partnerships will continue. In particular, the participation of the *Countywide Program* in BASMAA's regional radio and television advertising campaign and a regional media campaign will occur during Years 1 and 2. The degree of success of this regional participation will be reviewed annually to determine the type and degree of participation in the subsequent year.

In addition, the PI/P Coordinator will evaluate annually the additional opportunities to collaborate on educational outreach with the local wastewater treatment plants, the County's Home Composting and Household Hazardous Waste Programs, the Congestion Management Program, the Bay Area Air Quality Management District, ABAG's Green Business Recognition Program, and others. Based on these evaluations, the PI/P Subcommittee will decide whether and how to coordinate with these other programs.

This task will also include providing assistance for educating students about stormwater pollution prevention and environmental issues. This assistance may include supporting activities such as the following: the Bay Area Environmental Education Resources Fair; the Bay Saver Club; the Kids in Creeks Program; and the Community Stewardship Grant Programs that the *Countywide Program* supported during the initial NPDES permit period. The PI/P Subcommittee will decide annually which educational activities to support based on the known or expected effectiveness of the activity, how well the activity complements the PI/P Subcommittee's efforts to target outreach (Task 5.1), and other factors.

Task 5.8 Reporting and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. Annually, the General Program will review member agency compliance with performance standards.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Improve Targeting of PI/P Activities

The PI/P component will become more cost-effective by focusing on two subject areas for targeting and phasing messages and audiences over the next five years. Targeting will be achieved by conducting market research to understand what sorts of targeted messages and audiences will need to be addressed. This approach is more methodical and balanced than the first SWMP's diffuse approach. In addition, this approach provides an opportunity to measure progress and to optimize the activities found to be the most effective.

Shift More Responsibility to the Municipalities

Until FY 1995/96 the responsibilities and expectations of the municipalities in helping to implement the PI/P Component were largely undefined. The development of performance standards is a first step to formally shifting some of the responsibility for PI/P activities to the municipalities. Although many of the municipalities have been actively conducting PI/P activities, documenting responsibilities is new. The degree of this shift will depend on taking a phased and incremental approach to determining the optimum mix of local, General Program, and regional PI/P activities.

Continue to Build on Past Accomplishments

The *Countywide Program* will continue to use the basic PI/P materials and messages it has developed and successfully implemented during the first SWMP. An ideal opportunity to re-enforce the existing information is through the participation in the regional radio and television advertising campaign.

Continue to Take a Flexible and Creative Approach

One of the lessons learned during the previous SWMP is the value of taking a flexible and creative approach to PI/P implementation so that new information and ideas are evaluated and incorporated. The whole structure of the five-year plan with annual work plans is consistent with this approach of continuing to improve within the basic agreed upon framework of this SWMP.

SECTION 6

Municipal Maintenance Activities

GOALS

Municipal maintenance is an essential component because it provides the opportunity for the hundreds of maintenance staff working countywide to share information on how to optimize their activities to achieve stormwater quality goals. The Maintenance Subcommittee and recently formed Park and Recreation Workgroup provide a forum for sharing information and developing guidance materials.

The goals of this component include:

- Continuing to optimize pollutant removal during routine maintenance activities such as street sweeping, and maintenance of storm drainage facilities; and

- Identifying ways to prevent or minimize discharges to storm drains and watercourses from road maintenance and parks, corporation yards and other publicly-owned facilities.

EXISTING CONDITIONS

This section summarizes maintenance activities to control stormwater quality during the initial NPDES permit period.

Street Sweeping and Storm Drain System Maintenance

Significant municipal resources are spent on routine maintenance activities such as street sweeping and storm drain system maintenance for aesthetic purposes and flood control. These maintenance activities also remove pollutants that potentially would enter the storm drain system, creeks, estuaries and ultimately San Francisco Bay. Using agreed upon maintenance forms, municipalities have been keeping records of routine maintenance activities since June 1991. Municipalities compile street sweeping and storm drain system maintenance data on a monthly basis and submit it to the General Program. The street sweeping data include the volume of material removed and miles swept by each municipality. The storm drain system maintenance data include the number of inlets and other storm drainage facilities (e.g., creeks, channels, culverts and pump stations) inspected and cleaned and the total volume of material removed. The General Program compiles this information into a database which is used to generate tables for data presentation (see semiannual reports listed in Appendix C).

Cars parked on the street have been identified as a major obstacle to effective street sweeping. During the initial NPDES permit period, the Cities of Hayward, San Leandro and Union City made significant efforts to remove parked cars prior to sweeping (most other municipalities already had established routes and mechanisms for encouraging residents to remove parked cars). These cities have purchased new equipment and hired staff so sweeping routes could be established and residents notified of street sweeping schedules. The City of Oakland also made significant changes in its sweeping program including increasing the frequency of sweeping in residential areas, initiating cleaning in some areas, and essentially eliminating the practice of flushing streets.

Another area identified as a potential problem is gated or private communities where public works maintenance staff do not routinely clean streets or storm

drainage facilities. Insufficient maintenance by private contractors or homeowners associations in these communities (or any non-municipal or private areas that are not routinely maintained) not only results in discharges of pollutants, but may lead to flooding problems downstream.

Outreach

A major function of this component during the initial NPDES permit period has been to provide information about the *Countywide Program* to public works employees. This has primarily been accomplished through monthly or bimonthly meetings and annual workshops. A Maintenance Subcommittee, comprised of public works supervisors, was formed in January 1992 following the first annual workshop in the fall of 1991. At Maintenance Subcommittee meetings, performance standards have been developed and information presented by vendors on storm drain inlet retrofits for treating stormwater and alternatives for labeling storm drain inlets. The annual workshops have focused on educating maintenance field staff on the goals of the *Countywide Program* and obtaining their input on practices that may improve stormwater quality.

Maintenance Performance Standards

Performance standards have been developed for several activities. These standards specify municipal commitments within specified time frames. To date, performance standards for street sweeping, maintenance of storm drainage facilities and watercourses, litter control, corporation yards and road repair and maintenance have been developed by the Maintenance Subcommittee.

Corporation Yards

In March 1994 the Regional Board staff required that member agencies make any needed capital improvements to prevent washwater from entering the storm drain system by July 1, 1995. To assist the municipalities to comply with this requirement and identify other areas which may need improvement, the General Program inspected municipal corporation yards in Alameda County during the first half of 1995. Letters were sent to each municipality following the inspection identifying areas needing improvement, as appropriate.

Most municipalities who previously discharged washwater to the storm drain system have modified their practices by retrofitting the washpad to drain to the sanitary sewer, temporarily moving to a different location and/or adding a berm around the washpad area. In addition, most of the cities have implemented other recommended improvements such as covering materials stored outdoors and hauling wastes from the yard.

Park and Recreation Facilities

To address other maintenance activities of concern outside the realm of the Maintenance Subcommittee (e.g., maintenance of parks and open space lands) a workgroup was formed in the fall of 1994. The Park and Recreation Workgroup brought together for the first time personnel from municipal parks departments and outside public agencies such as the Alameda County Resource Conservation District, Alameda County Water District, Caltrans, East Bay Municipal Utility District, East Bay Regional Park District, and San Francisco Water Department. During the first year of the Park and Recreation Workgroup, performance standards for pesticide usage and pest management practices and fertilizer usage were developed. The fertilizer usage standards specifically address the need to properly design and

manage private and public golf courses to minimize pollutant discharges in stormwater runoff.

ACFC&WCD and Zone 7 Operations

Separate forms for documenting ACFC&WCD and Zone 7 activities have been prepared. These forms request information on illegal discharges observed, pesticide usage, public outreach efforts, restoration and planning activities. Workshops have been held with maintenance crews to discuss modifications to practices that would improve water quality without compromising flood control. Topics discussed have included identification of specific low-growing plant species that can be encouraged to grow in channels, identification of channel reaches that may be suitable for allowing trees and shrubs to grow on one bank, and discussion of locations where desilting practices could be modified.

MAJOR TASKS

The following major tasks will be conducted during the next five years.

Task 6.1 Implement and Update Performance Standards

Each agency will implement the Municipal Maintenance performance standards, contained in Appendix B, as part of its compliance with the countywide stormwater NPDES permit. The Maintenance Subcommittee and Management Committee will review and update annually, as needed, the performance standards for Municipal Maintenance.

Tracking
The General Program will develop and provide reporting forms to each of the member agencies to document the status of implementation of performance standards as appropriate. Completed reporting forms will be included in quarterly or semiannual municipal reports.

Corporation Yards
As mentioned earlier, the General Program inspected municipal corporation yards in Alameda County in 1995 and letters were sent to each municipality following the inspection identifying areas needing improvement. The General Program will assess whether these recommendations for improvement have been addressed.

Update Performance Standards
The Maintenance Subcommittee, Park and Recreation Workgroup and Management Committee will review and update annually, as needed, the performance standards. Examples of topics to address include promoting efforts to remove parked cars prior to street sweeping and enforcement of parking controls.

Task 6.2 Develop Additional Performance Standards

The Maintenance Subcommittee and Park and Recreation Workgroup will develop new performance standards. Draft performance standards will be submitted to the Management Committee for review and approval. The following describes activities for which performance standards will be developed. This list may be revised (in particular, other activities may be added to the list) during the five-year implementation period.

Graffiti Abatement
Pressure washing walls and building exteriors to remove graffiti may discharge and/or mobilize pollutants. Existing practices will be investigated and alternatives explored to minimize or eliminate non-stormwater discharges. For example, a vacuum hose may be attached to a pressure washer so that washwater can be collected for discharge to the sanitary sewer or recycling.

Parking Lots and Sidewalks
Another practice which may lead to non-stormwater discharges is flushing or pressure washing sidewalks and parking lots. Results of research performed on parking lots (including a recent study by the Santa Clara Valley Nonpoint Source Pollution Control Program at the Stanford Shopping Center) will be reviewed to help develop strategies for minimizing pollutant discharges.

ACFC&WCD Operations
The General Program will help coordinate efforts with ACFC&WCD staff to develop performance standards specific to operation and maintenance of flood control facilities. Areas to be addressed include routine maintenance of channels and watercourses, responding to and reporting illegal discharges, maintenance of regional treatment facilities, and pesticide and fertilizer usage.

Municipal Swimming Pools, Ponds, Fountains and Recreational Water Bodies
Municipal swimming pools, ponds, fountains and lakes are potential sources of pollutants to storm drain systems from practices such as adding chemicals to control algal growth and discharges of filter backwash from municipal swimming pools. The General Program will work with municipalities and other public agencies to better understand existing maintenance practices. If significant concerns exist, performance standards will be developed.

Task 6.3 Coordinate with Maintenance-Related Activities by Other Subcommittees of the ACCWP, Other Agencies and Private Industries

Workgroups with appropriate staff from other Subcommittees of the ACCWP, other public agencies and private industries whose activities are similar to or potentially affect municipal maintenance activities will be formed to identify activities of concern and possible BMPs. Examples of other public agencies and private industries include schools, PG&E, water suppliers and utilities, the Port of Oakland, golf courses, private recreational facilities and animal confinement areas. Efforts already initiated by other agencies and private industries to control discharges (e.g., BMPs developed by PG&E and results of the Alameda County Resource Conservation District's watershed protection plan for the Upper Alameda Creek watershed) will be reviewed prior to initiating coordination efforts.

Task 6.4 Identify Maintenance Requirements of Structural Controls to Improve Stormwater Quality and Target Locations for Use

The General Program will work with the Maintenance Subcommittee to identify new technologies for treating stormwater in storm drain inlets and lines and their maintenance requirements to help evaluate each technology's feasibility. The General Program will also work with municipalities to target locations for possible use.

Task 6.5 Optimize Data Management and Analysis

The General Program will optimize ongoing collection, recording and analysis of maintenance data. This data is primarily the street sweeping and storm drain system maintenance data described earlier. This will include continuing to evaluate the following:

- How reliable is the maintenance data reported by municipalities?
- Have parking controls, increased frequency of sweeping and other efforts such as public information

affected the volume of material removed?

- Are all of the types of maintenance data being collected useful or should other types of data be collected and the monthly record keeping form modified?

- How should the maintenance data be compiled for reporting purposes?

Task 6.6 Outreach

Outreach to both maintenance staff and the public is an important aspect of this component.

Maintenance Staff Outreach
The General Program will provide administrative support and guidance for the Maintenance Subcommittee and Park and Recreation Workgroup and will help coordinate annual workshops. In addition, materials designed to increase awareness of performance standards and encourage participation will be developed and distributed to maintenance field staff. Possible materials include bumper stickers and placards with the *Countywide Program* logo for maintenance vehicles and equipment, semi-annual newsletters, and laminated cards with guidance on implementing performance standards.

Public Outreach
The General Program will assist municipalities develop public outreach materials. Of particular interest will be educational materials that inform residents to remove parked vehicles from streets prior to street sweeping. In addition, development of outreach pieces directed at private communities where streets and storm drainage facilities may not be routinely maintained will be considered. The design of public outreach materials will be coordinated with the Public Information/Participation Subcommittee.

Task 6.7 Reporting and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. Annually, the General Program will review member agency compliance with performance standards.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Provide Information and Feedback to Other Subcommittees of the *Countywide Program* that Affect Maintenance

Increased coordination with other subcommittees will help make the *Countywide Program* more effective. For example, coordination with the New Development Subcommittee is needed regarding proposed structural controls (e.g., storm drain inlet and line interceptors/treatment systems) and gated (private) communities that may affect maintenance downstream. In addition, close coordination with the Industrial and Illicit Discharge Control Subcommittee is needed since maintenance staff may discover and often respond to illicit discharges. Lastly, coordination with the Public Information/ Participation Subcommittee will help in targeting outreach and preparing effective educational materials.

Form Workgroups to Develop Performance Standards

Assembling short-term workgroups has proved to be an effective approach for developing performance standards. The General Program will help identify appropriate workgroup members and coordinate meetings. The workgroups

will include municipal maintenance staff and staff from other agencies and private industry, as appropriate.

Optimize Maintenance Practices to Maximize Water Quality/Aquatic Habitat

The Park and Recreation Workgroup will coordinate with the Monitoring and Special Studies Subcommittee and BASMAA's Operational Permits Committee to integrate the results of special studies into the *Countywide Program*. For example, the results of the vegetated channels study completed in January 1994 suggests that vegetated channels may help to remove pollutants by retaining sediments and associated pollutants. The maintenance of flood control channels and watercourses will be addressed to protect and possibly improve beneficial uses.

SECTION 7

New Development and Construction Controls

GOALS

Modifications of natural drainage systems associated with urbanization e.g., filling wetlands, engineering drainageways to convey runoff quickly, and the increase in impervious surfaces associated with constructing buildings and paved areas for roads and parking lots contribute significantly to stormwater pollution. These types of changes lead to increases in the volume and rate of runoff and discharge of pollutants. Although much of Alameda County is already urbanized, efforts should be made to minimize the impacts of existing and future development and construction projects on environmentally sensitive areas and receiving waters.

The primary goals of this component include the following:

- Provide guidance to municipalities on cost-effective stormwater quality controls applicable to new development, significant redevelopment, and construction projects in Alameda County;
- Incorporate stormwater quality controls into the planning and permitting of new development/significant redevelopment projects;
- Effectively prohibit non-stormwater discharges and require controls to reduce the discharge of pollutants to the maximum extent practicable during the construction phase;
- Ensure that public works construction and maintenance projects conform to the same standards as private projects; and
- Continue to promote implementation of the Regional Board *Staff Recommendations for New and Redevelopment Controls for Stormwater Programs*.

EXISTING CONDITIONS

This section of the SWMP summarizes existing and potential development in Alameda County and what has been accomplished to control stormwater pollution during the initial NPDES permit period.

New Development Potential in Alameda County

Although western Alameda County is highly urbanized, significant development/redevelopment potential exists throughout the County. Table 7-1 summarizes information from the Association of Bay Area Governments (ABAG) on projected increases in population and number of households during the next decade (1995 - 2005) for municipalities in Alameda County.

In summary, eastern Alameda County is expected to experience high growth rates (Dublin, Livermore, Pleasanton and unincorporated Alameda County); other cities with higher than average growth rates include the Cities of Emeryville and Union City. By the year 2005, Alameda County's population may exceed 1.5 million residents occupying approximately 50,000 new households. According to other ABAG statistics, an additional 39,100 acres of land may be used for residential and commercial/industrial

development by the year 2010 (approximately 123,000 acres were developed in 1990). ABAG acknowledges that infill potential is inherently more difficult to quantify than the development potential associated with vacant land and is often underestimated.

Although the majority of new development projects in Alameda County may be redevelopment or infill projects, major residential subdivisions are being built or planned in eastern Alameda County as well as in the Cities of Fremont, San Leandro and Union City. Sufficient land for these projects generally allows vegetative controls to be considered for incorporation into the project design. The following provides examples of stormwater quality controls incorporated in residential subdivisions and infill projects.

Residential Subdivisions

The Cities of Livermore and San Leandro have approved experimental designs for residential subdivisions which incorporate stormwater quality controls. The design for a planned development in the City of Livermore (up to 130 single-family units on 50 acres) includes detention ponds adjacent to Altamont Creek to retain peak flows, and grassy swales between the curb and sidewalks to treat stormwater prior to discharge to the Creek. City of Livermore staff will visually monitor this project, and a similar development, to determine their effectiveness in improving water quality. In the City of San Leandro, staff recently required the developer of 86 acres of Roberts Landing, located adjacent to San Lorenzo Creek and San Francisco Bay, to reduce the number of residential units from 760 to 634 to accommodate two wet ponds.

Worth noting is the development of a September 1995 draft Tri-Valley Subregional Planning Strategy (Strategy) for eastern Alameda and southern Contra Costa Counties (Cities of Dublin, Livermore, Pleasanton, Danville, San Ramon, and Alameda and Contra Costa Counties). Two of the most relevant objectives for the *Countywide Program* in the draft Strategy are: 1) "coordinate... best management practices for stormwater runoff to protect water quality"; and 2)"establish comprehensive guidelines and strategies to protect and enhance... wetlands, riparian areas and oak woodlands."

Infill Projects

According to a project inventory conducted by the *Countywide Program* in July 1995, every municipality in Alameda County except the City of Piedmont had ongoing or planned infill projects. Examples of infill projects include warehouses, commercial/industrial complexes and single family homes or condominiums. Since limited space exists for incorporating vegetative controls in the project design, municipalities generally have required stormwater quality controls as part of their conditions of approval. Typical controls include retrofitting storm drain inlets to treat stormwater runoff, covering loading docks and trash enclosures, and requiring that wash areas drain to the sanitary sewer.

Cost-Effective Stormwater Quality Controls

Limited information currently exists on the cost-effectiveness of stormwater quality controls, although several studies are ongoing or planned. For example, storm drain inlet retrofits were tested in the Stanford Shopping Center parking lot, and studies of Jensen stormwater interceptors are ongoing in Menlo Park (San Mateo County) and planned for San Ramon (Contra Costa County). Based on a recommendation from the New

Development Subcommittee, the Monitoring and Special Studies Subcommittee initiated a study on the effectiveness of grassy swales at a commercial facility in Newark in FY 1995/96. In addition, two related projects funded through BASMAA during FY 1995/96 are preparation of a site planning and design manual for residential subdivisions and guidance on monitoring the effectiveness of best management practices.

Outreach

The New Development Subcommittee assists municipalities implement this component. Recent accomplishments of the Subcommittee include development of recommended conditions of approval to be incorporated into conditions of approval for specific projects, and BMP flyers for construction controls. Letters were sent to municipal planning and public works directors in September 1995 encouraging use of these items.

The first workshop for municipal planners and engineers was conducted in October 1995 to assist municipalities to incorporate stormwater quality controls into new development projects. Presentations at the workshop included specific examples of appropriate stormwater quality controls for residential subdivisions. Workshops targeted to municipal construction inspectors will be conducted in May 1996.

Regional Board *Staff Recommendations*

The Regional Board staff helped BASMAA organize a New Development Committee and prepared *Staff Recommendations for New and Redevelopment Controls for Stormwater Programs (Staff Recommendations)* in April 1994. Municipalities are to implement the *Staff Recommendations* over a two year time frame and report their progress to the Regional Board in annual reports due September 1, 1994, 1995 and 1996. (The Regional Board staff concluded in their review of the *Countywide Program*'s FY 1995/96 annual report that thirteen municipalities had acceptable programs and two cities had conditionally acceptable programs.)

Examples of the Regional Board staff's highest priority recommendations include:

- Requiring all proposed projects with land disturbances of five acres or more to prove coverage under the State's General Construction Activity Stormwater NPDES Permit;
- Requiring all proposed projects to address stormwater quality issues during the environmental review phase;
- Requiring all development plans to include schematic information on permanent erosion and stormwater quality controls; and
- Reviewing current erosion control program effectiveness to identify improvements to protect stormwater.

To address all of the *Staff Recommendations*, performance standards were developed by the New Development Subcommittee which specify municipal commitments within specified time frames.

MAJOR TASKS

The following major tasks will be conducted during the next five years.

Task 7.1 Track Municipal New Development Projects

The General Program will track municipal and private development projects, stormwater quality controls, and municipal measures and policies to control the quality of stormwater runoff. Tracking will primarily be conducted through New Development Subcommittee

meetings and quarterly/biannual municipal reporting. Municipal case studies will also be featured at these meetings. Tracking projects will enable the General Program to assist municipalities comply with performance standards, offer recommendations, and compile information on existing stormwater quality controls.

Task 7.2 Identify and Provide Guidance on Cost-Effective Stormwater Quality Controls

Information on the cost-effectiveness of stormwater quality controls will be compiled from member agencies, other stormwater quality management programs, BASMAA's New Development Subcommittee, ABAG, literature reviews, and equipment/product vendors. As appropriate, the New Development Subcommittee will recommend projects to the Monitoring and Special Studies Subcommittee for monitoring. Criteria for evaluating effectiveness will include operation and maintenance requirements, costs, and treatment capabilities. Educational materials will ultimately be prepared describing cost-effective controls for various types of development including new residential subdivisions, significant redevelopment projects, and commercial/industrial developments.

Task 7.3 Control Discharges from Construction-Related Activities

Workshops and other outreach methods will be used to educate municipal inspectors on what to look for during inspections (e.g., grading, construction, building), best management practices, follow-up procedures, and reporting. Appropriate erosion and sedimentation controls will also be reviewed. Lastly, the General Program will track changes in the State Board's General Construction Activity Stormwater NPDES Permit which expires in August 1997.

Task 7.4 Promote Outreach

Expand Existing Programs

Initial outreach efforts have focused on education of municipal planners and engineers through monthly New Development Subcommittee meetings and workshops. While these efforts should continue to ensure that stormwater quality controls are addressed during the planning and design phase, additional outreach is needed. Thus, during the next five years, outreach efforts will target contractors, developers, Planning Commissions and City Councils. As needed, workgroups will be formed to implement specific tasks. The General Program will evaluate positive incentive programs to ensure that contractors implement best management practices. An example that will be considered as a possible model for use includes the "Green Card" erosion and sedimentation control training and certification program used in Maryland and Delaware. This program requires that at least one person on every construction site receive the training and possess a Green Card.

Prepare and Distribute Educational Materials

Educational materials will be prepared to promote awareness of appropriate stormwater quality controls and other issues of importance to the New Development Subcommittee. Outreach pieces will be designed based on the intended audience (e.g., Planning Commissions, contractors) and guidelines developed by the Public Information/Participation Subcommittee. Various mechanisms for distributing information will be explored including use of the Internet.

Task 7.5 Implement and Update Performance Standards

As noted above, most municipalities are implementing the Regional Board staff's highest priority tasks, and performance standards have been prepared defining the scope of work for prescribed tasks and time frame for implementation. Each agency will implement the New Development and Construction Site Controls performance standards, contained in Appendix B, as part of its compliance with the countywide stormwater NPDES permit.
The New Development Subcommittee and Management Committee will review and update annually, as needed, the performance standards for New Development.

Task 7.6 Conduct Watershed Resource Inventory and Planning

The General Program will assist municipalities to develop criteria for determining sensitive areas, and review existing information on sensitive areas to identify "water quality sensitive" areas according to the schedule in the performance standards. This information will be used to identify development constraints.

Task 7.7 Coordinate with the ACFC&WCD

The New Development Subcommittee will form a workgroup with the ACFC&WCD (and Monitoring and Special Studies Subcommittee, if appropriate) to establish policies on the operation and maintenance of regional flood control facilities to maximize stormwater quality benefits. This will be conducted according to the schedule in the performance standards.

Task 7.8 Reporting and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. Annually, the General Program will review member agency compliance with performance standards.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Emphasize Source Controls for New Subdivisions

By addressing stormwater quality concerns during the planning and design phase of new subdivisions, the need for post-construction structural controls (e.g,, storm drain inlet retrofits, interceptors) should be reduced. Techniques to prevent and minimize impacts to water quality such as maximizing pervious surfaces, minimizing land disturbance and clustering dwellings will be evaluated along with vegetative controls for environmentally sensitive areas.

Seek Information on Cost-Effective Stormwater Quality Controls

Information will be compiled on cost-effective stormwater quality and erosion controls to assist municipalities to specify requirements to developers and contractors. In addition to information on vegetative controls for new subdivisions, erosion controls during construction, and operation and maintenance of structural controls will be pursued.

Enhance Implementation of the Regional Board *Staff Recommendations*

The Regional Board staff established April 1994 - June 1996 as a trial period for implementation of the Regional Board *Staff Recommendations*. Through guidance provided by the General Program and implementation of performance standards by municipalities,

implementation of the *Staff Recommendations* should be enhanced.

TABLE 7-1
PROJECTED INCREASES IN POPULATION AND NUMBER OF HOUSEHOLDS IN ALAMEDA COUNTY 1995 - 2005[1]

Municipality	Total Population 1995	Projected Increase in Population 1995 - 2005 (%)	Number of Households 1995	Projected Increase in # of Households 1995 - 2005 (%)
Alameda	79,700	1900 (2 %)	30,080	1,250 (4 %)
Albany	17,300	1,100 (6 %)	7,220	310 (4 %)
Berkeley	106,100	4,600 (4 %)	43,600	950 (2 %)
Dublin	26,800	22,600 (84 %)	7,630	6,870 (90 %)
Emeryville	6,500	2,600 (40 %)	3,610	1,490 (41 %)
Fremont	187,400	21,900 (12 %)	62,220	5,690 (9 %)
Hayward	129,500	9,200 (7 %)	44,280	3,070 (7 %)
Livermore	66,400	20,600 (31 %)	23,140	6,640 (29 %)
Newark	40,400	5,800 (14 %)	12,400	1,720 (14 %)
Oakland	387,600	17,700 (5 %)	144,030	5,490 (4 %)
Piedmont	11,300	300 (3 %)	3,780	90 (2 %)
Pleasanton	58,800	15,500 (26 %)	20,560	5,430 (26 %)
San Leandro	72,300	4,500 (6 %)	29,390	1,160 (4 %)
Union City	58,700	15,207 (28 %)	16,560	3,350 (20 %)
Unincorporated Alameda County	115,800	14,100 (12 %)	42,850	4,770 (11 %)
Livermore Valley	5,700	1,300 (23 %)	1,880	620 (33 %)
Cherryland/Fairview	21,100	4,500 (21 %)	7,610	1,380 (18 %)
Ashland	17,400	2,000 (11 %)	6,770	700 (10 %)
Castro Valley	50,800	6,000 (12 %)	19,230	1,980 (10 %)
San Lorenzo	20,800	300 (1 %)	7,360	90 (1%)
Total	1,364,600	154,100 (11%)	491,350	48,280 (10 %)

1. *Projections '96*, Association of Bay Area Governments, December 1995.

SECTION 8

Illicit Discharge Controls

GOALS

Pollutants poured, spilled, dumped, washed into, or discharged through illicit connections to storm drains would often go undetected without an active municipal program to inspect stormwater conveyance structures. Another aspect of the illicit discharge control program is to provide technical assistance in identifying the sources of spills.

The goals of this component are to:

- Control illicit discharges by conducting field surveys of the storm drainage conveyance system and identifying and eliminating the sources of non-stormwater discharges;
- Analyze information illicit discharge inspectors have obtained to identify consistent methods for conducting field surveys countywide;
- Optimize activities through planning and prioritization; and
- Effectively coordinate spill response and clean-up with existing programs.

EXISTING CONDITIONS

Most tasks are conducted by member agencies; the General Program provides assistance only in areas that would benefit all member agencies such as training, reporting, and support for achieving a consistent countywide approach. The Industrial & Illicit Discharge Control (I&IDC) Subcommittee provides overall direction and coordination for component activities. The I&IDC Subcommittee can also assign issues to its Illicit Discharge Ad Hoc Workgroup for more in depth consideration. It should be noted that the federal regulations for municipal stormwater NPDES permit applications specify certain non-stormwater discharges that will not be considered a source of pollutants when properly managed. These non-stormwater discharges (e.g., springs and dechlorinated swimming pool discharges) are incorporated into municipal stormwater ordinances (see Appendix C).

The following section summarizes member agency accomplishments during the initial NPDES permit period.

Storm Drainage Facilities

An inventory of the storm drain system within each municipality is essential to implementing an effective field survey program. The *Countywide Program* has identified over 3,000 screening stations and over 400 miles of storm drain lines. Screening stations include all outfalls (12-inches and larger in diameter) and the first manhole at or downstream from the junction of two storm drain lines. Municipalities have this information on hard copy maps, as well as electronic file. (See *Desktop Computer Mapping Pilot Project*, October 1992 and *Storm Drain and Screening Point Mapping Report*, September 1994 for information on screening points and storm drain lines; and *Management of Storm Water Facilities in Alameda County*, August 1992 for information on operation and maintenance of existing storm drainage facilities.)

Performance Standards and Annual Municipal Action Plans

Performance standards for implementing illicit discharge control programs describe the information each municipality will

include in an Annual Action Plan for the coming fiscal year.

Field Surveys

The member agencies utilize staff from various municipal agencies to implement different methods for surveying the storm drain system throughout the county including hazardous materials inspectors, Public Works source control inspectors, POTW pretreatment inspectors, municipal maintenance crews, and designated illicit discharge inspectors. (A description of the methods implemented by individual municipalities is in the semiannual reports submitted to the Regional Board.) If a non-stormwater discharge is found, the field inspector tries to identify and eliminate the source. This often requires coordinating with illicit discharge inspectors from other jurisdictions. Because member agencies use different methods for conducting field surveys, there was little consistency on how they were reported until 1994 when the Subcommittee adopted a one page quarterly summary form to document field activities by screening points, channel miles, and effective drainage area. (See *Field Manual: Illicit Discharge Identification and Elimination Program*, August 1992 which describes field screening procedures and methods for detecting and preventing illicit discharges.)

Illicit Discharge Complaint Response\Source Identification Program

Since a network of spill response and clean up programs already exists, establishing a new and separate stormwater response program would duplicate many of the services already being provided by these programs. The approach of this component is to supplement these services and respond to spill incidents that are not under the purview of previously existing clean-up programs. Each agency tracks illicit discharge reports and when necessary, conducts field investigations to attempt to identify and eliminate the source. They also investigate complaints from residents and business owners about non-stormwater discharges. In addition, the *Countywide Program* has conducted workshops in which other agencies (e.g., Regional Board, Department of Fish and Game, Fire and/or Hazardous Materials Departments) participated in educating illicit discharge inspectors about existing spill response programs in order to foster better coordination.

Tracking and Follow-up

As previously mentioned, the *Countywide Program* has tracked the findings and results of illicit discharge field surveys countywide since 1994 using information from the quarterly summary report forms. Information from these reports, illustrated in Figure 8-1, shows that automotive fluids are the primary type of illicit discharge to storm drains. Though the *Countywide Program* continues to approach eliminating non-stormwater discharges primarily through education and outreach, over 230 violation notices (informal and formal) have been issued countywide to date. A *Minimum Enforcement Protocol* was also adopted in 1994 to provide a framework for enforcement actions.

MAJOR TASKS

All of the tasks that will be ongoing throughout the next five year period are described below and illustrated in Figure 8-2. Figure 8-2 also shows how the illicit discharge control program relates to the industrial and commercial discharge control program. It is important to note that although the ACFC&WCD and Zone 7 of the ACFC&WCD do not have to inspect industrial and commercial facilities, they are responsible for the storm drains that they own and operate and therefore also implement an illicit discharge control program.

Task 8.1 Develop an Annual Action Plan

In the Action Plan, each member agency will describe its planned level of effort for conducting field surveys and investigations for the coming year. Action Plans, which only describe *member agency-specific* activities, will provide information on high priority screening areas, a schedule for inspecting high priority areas, and describe how the agency will coordinate information if field surveys and follow-up activities are conducted by different agencies. As described in the performance standards, other information to adequately describe additional aspects of the agency's illicit discharge control program will also be included in the Action Plan including how each agency will achieve the goals described in the performance standards.

Task 8.2 Conduct Field Surveys

Each agency will continue to inspect its stormwater conveyance system for illicit connections and non-stormwater discharges. Inspection procedures include field surveys, follow-up activities to identify and eliminate the source of the discharge, and documentation for tracking. The goal of the *Countywide Program* is for each member agency to survey high priority areas within its jurisdiction at least once every year and the municipality's entire drainage area during the five year permit period.

Task 8.3 Investigate Illicit Discharge Reports\Complaints

Each member agency will continue to investigate the source of illicit discharges and/or complaints within its jurisdiction, as appropriate. Each member agency will conduct follow-up activities to identify the source of the spill and document these activities for tracking, permit compliance reporting, and prioritizing subsequent field surveys.

Task 8.4 Effectively Eliminate Illicit Discharges\Implement and Update Performance Standards

Activities to identify the source of non-stormwater discharges will be conducted by the illicit discharge inspector during field surveys, investigations, and/or conducted in response to spill reports/ complaints. Once the source is identified, the illicit discharge inspector may require that the responsible party use BMPs or other measures to effectively eliminate non-stormwater discharges to storm drains. Guidance will be developed by the I&IDC Subcommittee, as needed, to help ensure non-stormwater discharges are addressed consistently countywide. The illicit discharge inspector may also decide to initiate enforcement actions depending on the impact of the discharge. Activities conducted by illicit discharge inspectors will be coordinated with the industrial and commercial facility inspection program if the discharge is traced to a facility and/or other agencies if the discharge is traced upstream to another jurisdiction.

Each member agency will implement the illicit discharge control program performance standards, contained in Appendix B, as part of its compliance with the countywide Stormwater NPDES permit. The I&IDC Subcommittee and Management Committee will review and update annually, as needed, the performance standards for illicit discharge controls.

Task 8.5 Track and Analyze Illicit Discharge Control Program Findings

This task includes elements that each member agency is responsible for implementing as well as ones the General Program will conduct. Each agency will describe its illicit discharge activities and collect and track all the information necessary to identify and effectively eliminate the source of the discharge. This includes:

- field surveys of its storm drains;
- activities conducted in response to spill reports/complaints;
- the types of discharges that were identified;
- follow-up that was conducted to identify the source of the discharge;
- activities conducted to eliminate the discharge to the storm drains (e.g., BMPs, enforcement); and
- whether the discharge to the storm drains was eliminated.

Tracking information becomes especially important when more than one agency becomes involved in an investigation. Because illicit discharges are diffuse in nature, the illicit discharge inspector might be required to coordinate with other agencies if the discharge is traced to another jurisdiction.

The General Program will collect a subset of this information to demonstrate to the Regional Board staff each member agency's compliance with the municipal storm water permit. The minimum information reported (as defined by the I&IDC Subcommittee) to the General Program will be submitted in quarterly summary reports. The General Program will also analyze countywide information to help improve illicit discharge control program activities with direction from the I&IDC Subcommittee.

Task 8.6 Share Information on Identifying Illicit Discharges and Their Sources

Illicit discharge control program information can be useful to other *Countywide Program* components, such as PI/P for identifying outreach target groups or the industrial and commercial discharge control component for identifying needs for BMP guidance. The I&IDC Subcommittee will provide general guidance on the types of discharges associated with certain types of activities or categories of dischargers using information gathered by illicit discharge inspectors. The point of this task is to help other components find solutions for effectively eliminating non-stormwater discharges by providing a better understanding of their sources.

Task 8.7 Conduct Training for Illicit Discharge Inspectors

The I&IDC Subcommittee will continue to coordinate training workshops for illicit discharge inspectors. The *Countywide Program* will enhance its illicit discharge control program by using lessons learned from previous experiences to train inspectors on improved methods for conducting field surveys, investigating spills, applying BMPs and enforcement. This forum is important to help ensure the level of effort of illicit discharge control activities is consistent countywide. This forum is also a way for member agencies to improve their understanding of the roles and responsibilities of other agencies that respond to spill incidents.

Task 8.8 Reporting, Annual Action Plans and Budget Development\Component Management

The General Program will prepare reports, budgets and other items to assist with implementation, documentation and management of this component. The General Program will also develop a reporting format for the member agency-specific Annual Action Plans to ensure illicit discharge control program activities are reported consistently throughout the county. All consistency and coordination aspects of the task will be completed with direction from the I&IDC Subcommittee. Annually, the General Program will review member agency compliance with performance standards.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Improve Programs Using Existing Information

Information from previous illicit discharge control activities will continue to be used to improve and make more efficient field survey and spill response procedures. Two of the objectives of this strategy are to help inspectors find easier or better ways of finding, tracking and eliminating illicit discharges, and to obtain a better understanding of pollutant sources so the *Countywide Program* effectively prioritizes screening areas and selects topics for BMP guidance.

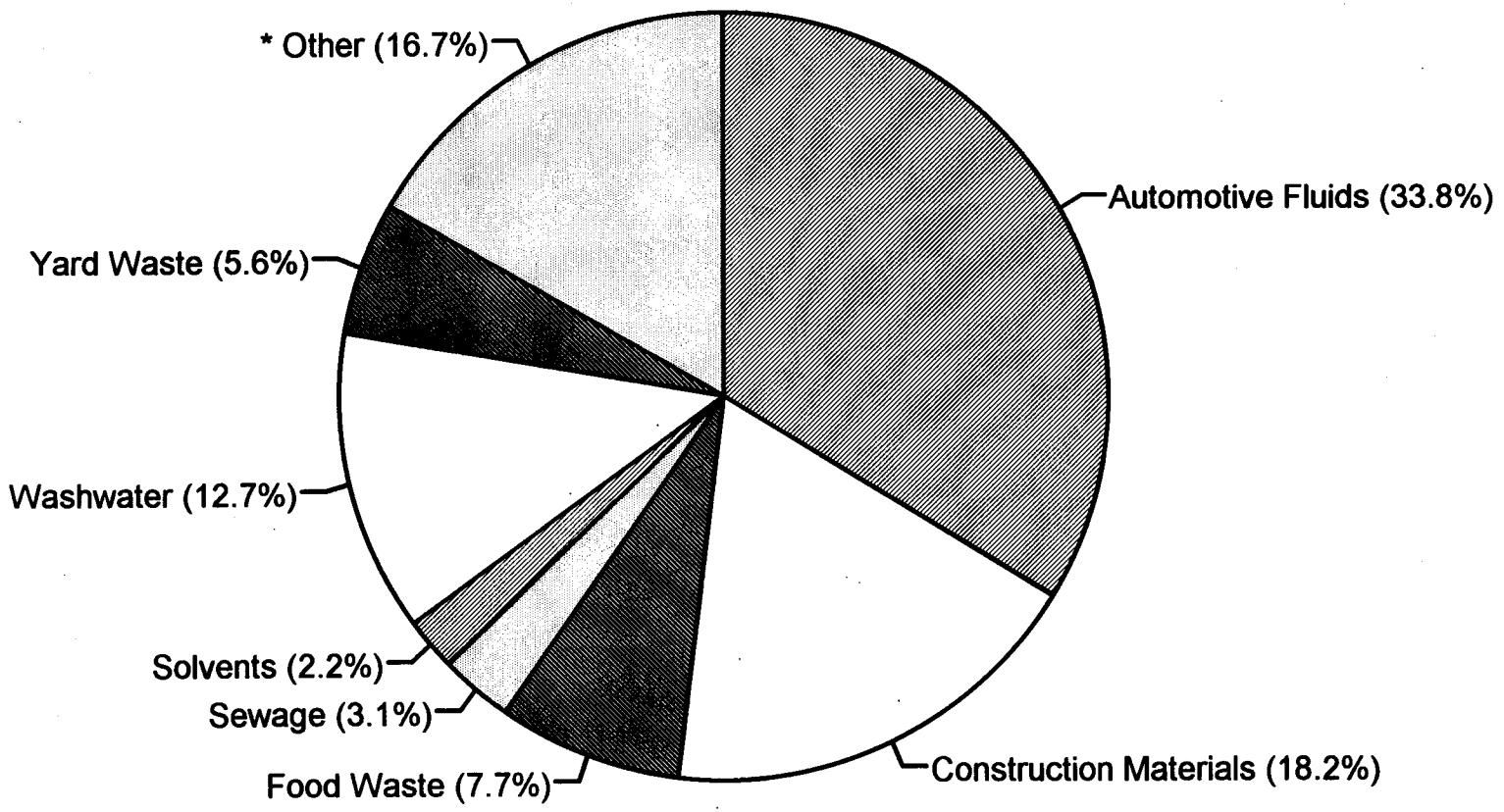
Enhance Level of Effort and/or Enforcement

As people are made more aware of the *Countywide Program* through PI/P, illicit discharge inspections, or facility inspections, municipalities will ramp up their level of effort and/or enforcement on repeat or continuing dischargers. It is important that the *Countywide Program* establishes its credibility through follow-up and enforcement that is equitable and consistent countywide.

Improve Intra/Interagency Coordination

It is essential that efforts are streamlined to prevent duplicate efforts and confusion. Effective communication among agencies both within and outside the member agencies is vital to eliminating discharges that involve more than one jurisdiction. When appropriate, the *Countywide Program* will coordinate illicit discharge control activities among departments and agencies.

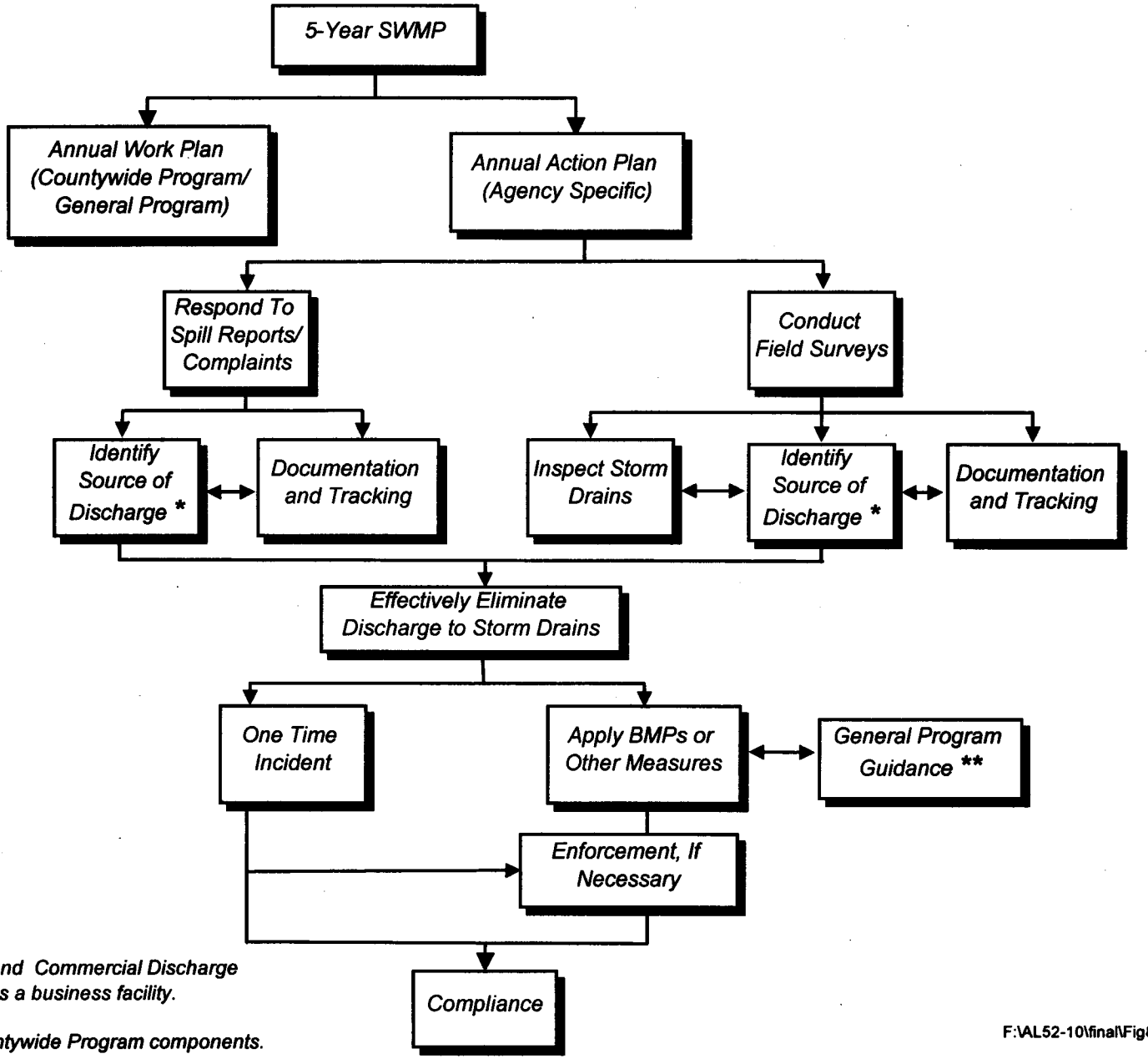
FIGURE 8-1
MATERIALS REPORTED DURING ILLICIT DISCHARGE INSPECTION ACTIVITIES
(JANUARY 1992 THROUGH JUNE 1995)



Total incidents reported = 1,430

* "Other" discharges include pools, carpet cleaning, process water, ink, litter,

FIGURE 8-2
IMPLEMENTATION APPROACH FOR ILLICIT DISCHARGE CONTROL PROGRAM ACTIVITIES



* Coordinate with Industrial and Commercial Discharge Control Program if source is a business facility.

** Coordinate with other Countywide Program components.

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SECTION 9

Industrial and Commercial Discharge Controls

GOALS

The nature of outdoor activities conducted by industrial and commercial facilities results in the potential for pollutants to discharge to municipal storm drains.

The goals of this component are to:

- Reduce the amount of pollutants in stormwater runoff and eliminate non-stormwater discharges to municipal storm drains from industrial and commercial facilities; and

- Identify and minimize potential stormwater pollution sources through facility inspections, outreach activities with businesses, and appropriate follow-up including enforcement.

EXISTING CONDITIONS

The active participation of municipal representatives and Regional Board staff in the Industrial & Illicit Discharge Control (I&IDC) Subcommittee since it was formed in 1992 has been essential for developing guidance and reaching consensus on inspection issues. The I&IDC Subcommittee is very dynamic and often forms workgroups to address specific topics such as inspector training, BMP guidance, wash water information, and inspection data management. The General Program provides technical and administrative assistance to both the Illicit Discharge Controls and the Industrial and Commercial Discharge Controls components through close interaction with the I&IDC Subcommittee and its workgroups. The I&IDC Subcommittee also provides inspectors a forum for sharing experiences that might benefit others including discussions of unresolved problems in order to identify possible solutions.

The following summarizes accomplishments achieved by the Industrial and Commercial Discharge Control Program during the initial NPDES permit period.

Performance Standards and Annual Inspection Plans

Municipal performance standards for implementing industrial and commercial business inspection programs are included in Appendix B. The performance standards also outline the Annual Inspection Plan elements each municipality will prepare for the coming fiscal year.

Industrial and Commercial Facility Inspections

Between July 1992 to January 1996, the *Countywide Program* conducted over 4,500 industrial and commercial facility inspections. Depending on the municipality, stormwater facility inspections have been incorporated into POTW pretreatment, hazardous materials, Public Works source control, and fire department inspections. A subset of the facilities inspected by the *Countywide Program* include facilities also covered under the California General Industrial Activity Stormwater NPDES permit (these facilities are required to submit a Notice of Intent for coverage and are referred to as NOI facilities). Municipalities cooperate with the Regional Board, which has shared jurisdiction and responsibility for NOI facilities, by providing information about NOI sites under the terms of a Memorandum of Understanding and

subsequent letter agreements clarifying the *Countywide Program* inspectors' role with NOI facilities.

The *Countywide Program* has a "hands on" approach to training facility inspectors which has helped develop good inspection practices throughout the county. The *Countywide Program* training program has conducted field exercises and developed a slide show for training inspectors on BMPs (the slide show is also available to individual municipalities to train additional inspectors).

The *Countywide Program* has one of the most advanced and active facility inspection programs in California which contributed to the *Countywide Program* receiving a U.S. EPA National Excellence Award and a U.S. EPA grant to develop a handbook on how to develop and conduct an effective municipal stormwater facility inspection program. The handbook includes case studies from the *Countywide Program* and other stormwater programs throughout California.

Outreach to Businesses

In the spring of 1993, the *Countywide Program* conducted three similar workshops for businesses throughout the county entitled *Complying With the Alameda County Urban Runoff Clean Water Program*. The *Countywide Program* also conducted a pilot workshop as part of one of the West Oakland Commerce Association meetings. The workshop, developed with direction from West Oakland Commerce Association representatives and City of Oakland staff, brought stormwater training directly *to* the business owners. This workshop was then used to create a model workshop for municipalities to conduct with business groups and trade associations within their jurisdiction.

Tracking and Follow-up

The *Countywide Program* has undergone a progressive evolution of facility inspection forms during its first five years, from detailed inspection checklists to summary inspection reports. The current (one page) inspection report (adopted by the I&IDC Subcommittee in February 1996) incorporates input from nearly all of the municipalities as well as Regional Board staff and is not anticipated to change significantly during the next five year period.

The *Countywide Program* has developed facility databases to manage the inspection information including a mapping program that allows municipalities to visually identify trends based on information reported from facility and illicit discharge inspections.

Effective follow-up inspections are integral to the success of the facility inspection program. Stormwater inspectors work with facility operators to reduce the amount of pollutants exposed to stormwater runoff and eliminate non-stormwater discharges. Inspectors help facility operators learn about pollution prevention and BMPs. However, enforcement has also been necessary when the partnership approach was not effective. Since July 1993, approximately 300 violation notices (informal and formal) have been issued and two legal actions taken. The same protocol for the illicit discharge control program is also used for the facility inspection program (see *Minimum Enforcement Protocol* included with the performance standards).

Best Management Practices

The Subcommittee has formed a BMP Workgroup that reviews the needs of facility and illicit discharge inspectors for BMP educational materials. The *Countywide Program* has developed nine BMP flyers for industrial and commercial

business activities and three brochures that target specific automotive businesses. The *Countywide Program* also adapts outreach and BMP pieces from other stormwater programs, and contributes to regional efforts to develop BMPs, as appropriate. Examples of adapted materials include two BMP booklets (one for general industrial facilities and one for automotive businesses) adapted from the Santa Clara Valley Nonpoint Source Pollution Control Program and a BMP poster for restaurants adapted from the City of Santa Monica. Material developed or adapted by the General Program is often provided to municipalities as an electronic file on a floppy disk so municipalities can tailor the piece with information on local contacts and telephone numbers.

In addition to developing BMP outreach and information materials, the I&IDC Subcommittee also developed a priority list for wash water discharges. The list includes different categories of wash waters and acceptable disposal methods.

MAJOR TASKS

All of the tasks that will be ongoing throughout the next five year period are described below and illustrated in Figure 9-1 which also shows how this component relates to the illicit discharge control program. It is important to note that despite the parallels, the two inspection programs have different approaches. The Industrial and Commercial Discharge Controls component involves inspecting *businesses* to prevent pollutant discharge to the storm drains. The Illicit Discharge Controls component involves inspecting *storm drains* for discharges and traces the discharge to its source, which may or may not be a business facility.

Task 9.1 Develop an Annual Inspection Plan

Each municipality will describe its planned level of effort for conducting facility inspections for the coming year in an Inspection Plan (Plan). The Plan will only describe *municipality-specific* information including a priority list of facilities or business types and the number of facilities that will be inspected during the coming fiscal year. (For example, this list could include municipal landfills, hazardous waste treatment, disposal and recovery facilities, as appropriate, for specific municipalities.) Information to adequately describe additional aspects of the municipality's industrial and commercial inspection program will also be included in the Plan, as described in the performance standards (Appendix B). In general, the Plan describes how each municipality will achieve the goals described in the performance standards.

Task 9.2 Conduct Facility Inspections and Outreach Activities; Implement and Update Performance Standards

Each municipality will continue to conduct facility inspections and business outreach to effectively reduce pollutant discharges to its municipal storm drains. Each agency will implement the Industrial and Commercial Business Inspection Activities performance standards, contained in Appendix B, as part of its compliance with the countywide Stormwater NPDES permit. The I&IDC Subcommittee and Management Committee will review and update annually the performance standards for Industrial and Commercial Business Inspection Activities, as needed.

Facility Inspections

Conducting stormwater inspections at industrial and commercial businesses includes: 1) initial/regular site visits to assess the facility's current impact on stormwater; 2) follow-up to ensure BMPs are effectively applied and

pollutant discharge to storm drains is eliminated to the maximum extent practicable; 3) documentation and tracking; and 4) enforcement when necessary. The goal of the *Countywide Program* is for each municipality to inspect high priority facilities (defined in the municipality's Annual Inspection Plan) at least once every year, and the municipality's businesses/ facilities, that have the potential to impact stormwater, at least once during the five year NPDES permit period.

The *Countywide Program* will also continue to share information on NOI facility inspections with the Regional Board staff and work with them to identify how these inspections will be coordinated. Lastly, monitoring data from NOI facilities submitted in annual reports to the Regional Board will be obtained and reviewed.

Outreach to Businesses

The second component to this task is conducting outreach activities to business representatives. This includes educating individual representatives during stormwater facility inspections as well as working with trade associations and business groups to present program goals and offer ideas to solve general compliance issues. There have also been recent efforts to develop regional business recognition programs such as BASMAA's Clean Business Program for Mobile Cleaners and ABAG's Green Business Recognition Program. As requested, the I&IDC Subcommittee will investigate the potential for coordinating stormwater inspection information with these and other regional programs to help ensure that businesses who receive recognition are in compliance with *Countywide Program* NPDES permit requirements.

Task 9.3 Track and Analyze Inspection Findings

Facility inspection information will be summarized and reported to the Regional Board to demonstrate compliance with the NPDES permit. Municipalities will complete the one page report form to record the facility inspection and any follow up. The General Program will continue to compile the inspection information countywide in the facility database and work with the I&IDC Subcommittee to refine future inspection efforts.

Task 9.4 Share Information on Pollutant Contributions from Facilities

The Subcommittee will share inspection information with other components of the *Countywide Program* and other stormwater programs. The I&IDC Subcommittee will provide general guidance on business types or activities with potential to discharge pollutants to storm drains and how businesses have eliminated this potential by effectively applying BMPs.

Task 9.5 Refine BMP Guidelines

As the *Countywide Program* conducts more and more facility inspections, inspectors gain better knowledge of the effectiveness of certain stormwater BMPs. The Subcommittee will periodically review and revise existing BMP guidance, as appropriate, to ensure that they are current.

Task 9.6 Conduct Training for Facility Inspectors

The Subcommittee will continue to coordinate training workshops for facility inspectors. The *Countywide Program* will use lessons learned from inspections to train inspectors on improved methods for identifying issues that affect stormwater quality. Facility inspectors will also be trained on the effectiveness of BMPs as

they are refined and as new guidelines are developed. This forum is important to help ensure that the level of inspection and outreach efforts are consistent countywide.

Task 9.7 Reporting, Annual Inspection Plans, and Budget Development\ Component Management

The General Program will compile and summarize information on General Program and municipal activities to report to the Regional Board semi-annually. The General Program will also develop a reporting format for the municipality-specific Annual Inspection Plans to ensure that industrial and commercial discharge control program activities are reported consistently throughout Alameda County. All consistency and coordination aspects of this task will be completed with direction from the I&IDC Subcommittee. Lastly, the General Program will prepare budgets and other items to assist with implementation, documentation and management of this component including reviewing municipality compliance with performance standards.

IMPLEMENTATION STRATEGY

The overall strategy during the next five years includes the following elements:

Improve Inspection Programs Using Findings from Previous Years

Information from previous facility inspections will be used to improve the selection of priority businesses, inspection methods, and existing BMP guidance. Previous experience has also taught the *Countywide Program* that one of the best ways to exchange BMP information is through trade associations and business groups.

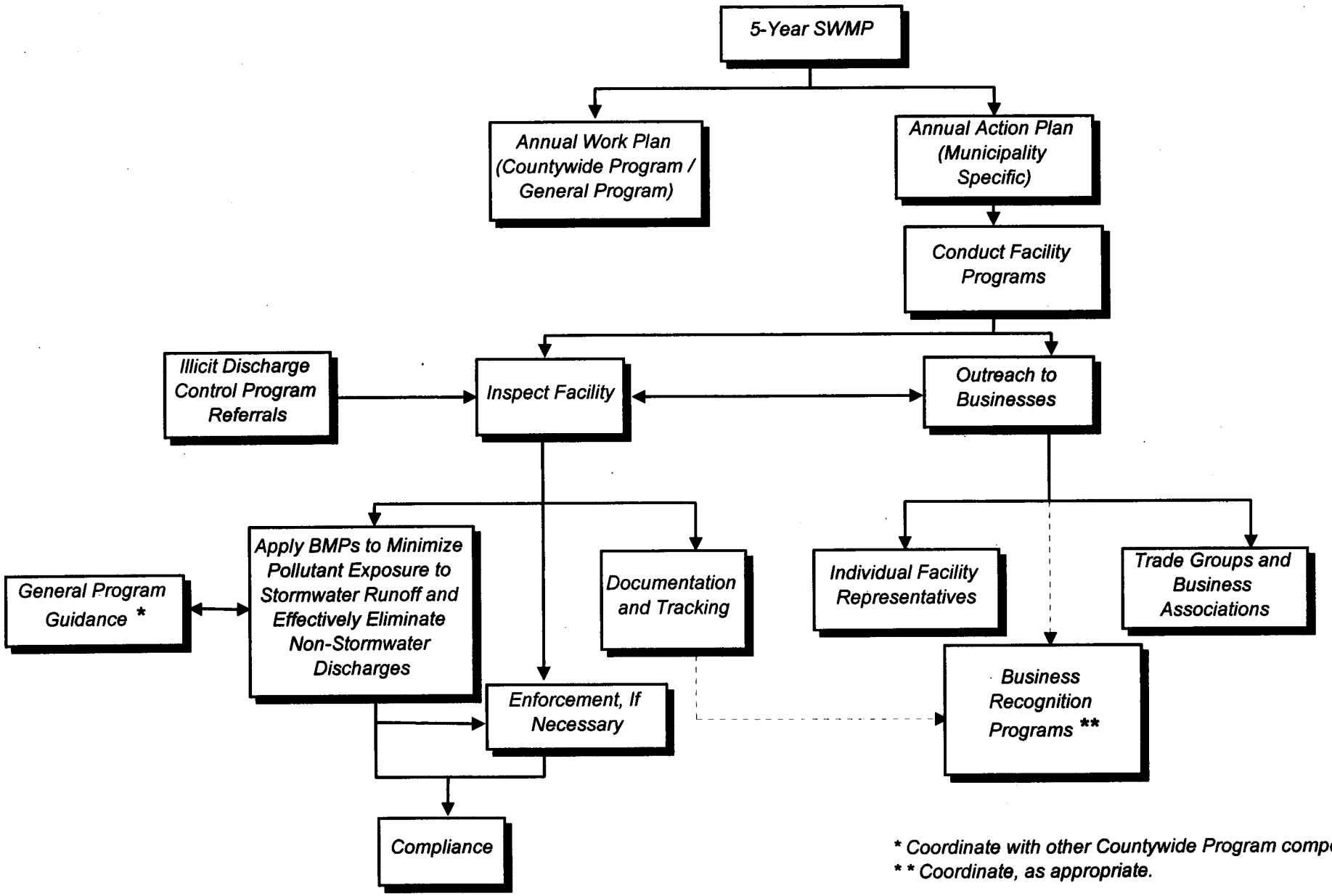
Prioritize Inspection Program

The General Program will continue to develop guidelines for an effective inspection program. Individual municipalities will prioritize their programs within these general guidelines while considering its mix of industrial and commercial businesses and the results of routine facility inspections and follow-up compliance inspections.

Enhance Level of Effort and/or Enforcement

Countywide Program facility inspections will continue to increase stormwater awareness among business owners and operators. The I&IDC Subcommittee will strive to develop a consistent approach to enforcement which is essential for the *Countywide Program* to maintain credibility among the business community.

FIGURE 9-1
IMPLEMENTATION APPROACH FOR INDUSTRIAL AND COMMERCIAL DISCHARGE CONTROL PROGRAM ACTIVITIES



* Coordinate with other Countywide Program components
* * Coordinate, as appropriate.

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Appendix A

APPENDIX A

FY 1996/97 WORK PLANS AND BUDGET

List of Tables

Table A1. FY 1996/97 General Program Budget Summary

Program Component	FY 1996/97 Budget
2.0 Regulatory Compliance, Planning, and Program Management	$472,000
3.0 Focused Watershed Management Approach	$110,000
4.0 Monitoring and Special Studies	$514,500
5.0 Public Information/Participation	$530,000
6.0 Municipal Maintenance Activities	$83,000
7.0 New Development and Construction Site Controls	$77,000
8.0 Illicit Discharge Controls	$25,000
9.0 Industrial and Commercial Discharge Controls	$121,000
Contingency	$167,500
TOTAL	$2,100,000

Table A2. Regulatory Compliance, Planning and Program Management General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
2.1 Assist with Regulatory Compliance: • The General Program will prepare deliverable forms for member agencies to streamline the information that needs to be collected for reporting to the Regional Board. • Draft and final semiannual reports summarizing General Program and member agency activities will be prepared and submitted by the required dates in the NPDES permit. • The General Program will review each member agency's performance and meet with each agency to discuss its performance and ways to improve the ACCWP. Additional assistance will also be provided to member agencies as need to optimize regulatory compliance. • Negotiate with Regional Board staff on NPDES permit's findings and provisions	These tasks are all based on the SWMP.	$100,000 ($7,000) ($43,000) ($40,000) ($10,000)	 July 23, 1996 and January 27, 1997 October 1, 1996 April 1, 1997 June 30, 1997 August - October 1996
2.2 Lead and Represent the ACCWP: The Management Committee Chair or other designated personnel will represent the ACCWP at BASMAA, State Stormwater Quality Task Force, Regional Monitoring Program meetings and other meetings as appropriate or requested by member agencies. This task will also include anticipating regulatory initiatives that affect the ACCWP, promoting awareness of the ACCWP, and identifying opportunities for collaborating with other agencies.		$102,000	ongoing
2.3 Plan, Initiate, and Respond to Regulatory and Grant Funding Initiatives: The General Program will work through BASMAA, the State Stormwater Quality Task Force, and other organizations to identify and evaluate regulatory and grant funding initiatives and issues that may impact the ACCWP. Draft and final comments on regulatory issues will be prepared for the Management Committee's review and final comments submitted and/or presented at public hearings and meetings. Grants will be applied for and managed if awarded. Legal assistance will also be funded through this task, as needed.		$50,500	ongoing
2.4 Continue to Institute a Process for Continuous Improvement: The General Program will compile comments from member agencies on how to improve implementation of the ACCWP, forward these comments as appropriate, and track implementation of requested changes.		$0 (budget included as part of Task 2.1)	compile comments by August 1, 1996 (based on FY 1995/96 comments)

Table A2. Regulatory Compliance, Planning and Program Management General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
2.5 Provide ACCWP Management Services: • Support the Management Committee, Policy Level Subcommittee, and work groups as appropriate. • Provide financial, contract, and program management support activities. Specifically, the General Program will conduct fiscal analyses, process accounts receivable and payable, track consultants' work, prepare quarterly reports which document General Program budget expenditures and the status of tasks, and prepare the following year's General Program budget. • Provide quarterly reports about General Program progress and expenditures.	This task is based on the SWMP.	$ 147,000 ($56,000) ($61,500) ($29,500)	ongoing
Annual NPDES permit fee		$12,000	
Annual BASMAA dues		$60,500	
	TOTAL	$ 472,000	

Table A3. Focused Watershed Management General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
3.1 Participate in Watershed Management Projects Lead By Others	ACCWP will track and participate in watershed management projects led by others to represent ACCWP interests.	$0 (Task to be conducted by District Staff under Monitoring and Special Studies Task 4.1)	ongoing
3.2 Prepare for, Conduct, and Complete Pilot Project:			
3.2.1 Pilot Watershed Project Work Plan	Prepare five year work plan for Pilot Watershed Management Plan.	$30,000	February 1997
3.2.2 Data Compilation	Compile data for Draft Watershed Management Plan.	$30,000	July 1997
3.2.3 Volunteer Monitoring Technical Support	Provide technical support, training, quality assurance quality control for volunteer monitoring groups in San Leandro Creek to ensure data necessary for watershed management is gathered.	$30,000	October 1997
3.4 Assist with Implementing NPDES Permit Requirements, MOU Required reports, Annual Work Plans, and Budget Development	Bring issues for consideration by the general program to the policy committee and management committee as appropriate.	$20,000	ongoing
	TOTAL	$110,000	

Table A4. Monitoring and Special Studies General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
4.1 Track and Coordinate with Regional Monitoring Program, BASMAA and Watershed Management Projects Led By Others:	Continue to track and coordinate monitoring with RMP and BASMAA. Attend Technical advisory meeting and steering committee meetings.	$20,000[1]	ongoing
4.1.1 Regional Monitoring Program	This fee is the ACCWP portion of the Regional Monitoring Program costs. The RMP is conducted by the San Francisco Estuary Institute for the Regional Board.	$160,000[1]	ongoing
4.1.2 Bay Protection Toxic Clean-up Program	This fee is the ACCWP portion of the BPTCP costs.	$20,000[1]	ongoing
4.2 Long Term Stream Monitoring	Long term stream monitoring to be conducted by the Flood Control and Water Conservation District. Includes costs for sampling and chemical analysis.	$110,000[1]	ongoing

Table A4. Monitoring and Special Studies General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
Task 4.3 Special Studies: 4.3.1 Special Studies Needs Assessment	Attend other Subcommittees and conduct assessment of the need for special studies.	$10,000	December 1996
4.3.2.1 Effectiveness of Structural Treatment Measures	Conduct Pilot Project on modified maintenance of vegetation in channels at one location.	$15,000	October 1997
4.3.2.2 Structural Wetlands Treatment	Survey concentrations of DDT, PCBs, selected metals in fish tissues from urban runoff streams and impoundments.	$60,000	October 1997
4.3.4 Dry Weather Diazinon Monitoring	Collect data on diazinon in water in Crandell Creek and Castro Valley during dry weather.	$30,000	October 1997
4.4 Pilot Watershed Management Project	Initiate a Pilot Watershed Project in San Leandro Creek. Prepare a Work Plan for the project describing objectives, stakeholders, approach, schedule and budget.	$0 (budget included in Watershed Management Task 3.2)	October 1997
4.5 Component Management: 4.5.1 Quarterly Reporting	Prepare quarterly reports of monitoring and special studies activities.	$5,500	Each Quarter
4.5.2.1 Long-Term Stream Monitoring Data Management & QA/QC	QA/QC and update monitoring database.	$27,000[2]	October 1997
4.5.2.2 Long-Term Stream Monitoring Reporting	Prepare annual report on long-term stream monitoring.	$37,000[2]	October 1997
4.6 MSS Subcommittee Support	Provide technical support for MSS Subcommittee.	$20,000	ongoing

Table A4. Monitoring and Special Studies General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
	TOTAL	$514,500.	

Notes:

1- Task to be conducted by Alameda County Flood Control and Water Conservation District (District) Staff under General Program Budget;
2- Task to be conducted by District and Consultant under General Program Budget.

Table A5. Public Information/Participation General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
5.1 Implement Targeted Outreach: This task consists of developing an implementation plan for the residential yard and garden care audience based on the market research conducted in FY 95/96. This task also includes beginning to implement the plan, which may require the development of additional creatives. The last item this includes is the support for the printing and placement of local billboard and newspaper advertising, as appropriate, that will be developed by BASMAA for its yard and garden care program.	The costs for the printing and local placement of BASMAA created billboards and advertising has been included under this task since these items are likely to help further the campaign with the residential yard and garden care. Decisions on what exactly will be done need to wait until the market research and implementation plan have been completed.	$125,000	to be determined
5.2 Continue to Reinforce General Outreach Messages: This task includes the following items: General Program public relations; developing and obtaining promotional materials for use by the municipalities; updating and reprinting existing ACCWP materials; and continuing the PI/P coordinator participation in and representation at General Program at outreach events.	The amount of funding for General Program public relations has been reduced from $25,000 in FY 95/96 to $10,000 based on BASMAA developing a regional public relations activity (described under Task 7).	$70,000 ($10,000 public relations; $25,000 promotional materials; $20,000 reprinting; and $15,000 for the PI/P Coordinator to represent the ACCWP)	ongoing
5.3 Support Watershed-based Approaches: The PI/P Coordinator will act as a coordinator and information clearinghouse to assist municipalities conduct watershed type activities.	This task is meant to be within the PI/P Coordinator's existing role.	$0 (budget is under Task 5.8)	ongoing
5.4 Evaluate Effectiveness: This task in FY 96/97 is to continue to track number of telephone calls received and materials sent out by the General Program as a rough measure of the effectiveness of the PI/P component.	This task may include more formal surveys to measure public awareness in future years, but not in FY 96/97.	$0 (budget is under Task 5.8)	ongoing

Table A5. Public Information/Participation General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
5.5 Assist Municipalities Update and Implement Agreed Upon Performance standards: The PI/P Subcommittee and Management Committee will review and update, if needed, PI/P's performance standards. The PI/P Coordinator will also review each municipalities' compliance with the agreed upon performance standards and notify any municipalities in writing who are not meeting the performance standards.	These task are all based on the SWMP.	$0 (budget is under Task 5.8)	by December 1996
5.6 Assist with Focused Staff Training: This task will include the PI/P Coordinator working with the PI/P Subcommittee to identify its training priorities and to implement the desired training.		$10,000	evaluation by September 1996
5.7 Seek Partnerships, Build Coalitions, and Provide Educational Support: This task includes providing support for BASMAA's regional advertising campaign and for its regional public relations activities. The task also includes working with groups who are most associated with residential yard and garden care, such as the home composting program. Possible coordination on ABAG's Green Business Recognition Program will also be included as part of this task. Lastly, educational support for activities such as the Kids in Creek program, Bay Saver Club, BAER Fair, and Community Stewardship Grants are included as part of this task.	This task is based on the SWMP. The contribution to the BASMAA advertising campaign is the same as FY 95/96; the amount budgeted for educational support is also similar to FY 95/96.	$235,000 (BASMAA regional advertising - $100,000; BASMAA public relations - $10,000; and educational programs - $125,000)	ongoing
5.8 Assist with Implementing NPDES Permit Requirements, MOU Required Reports, Annual Work Plans, and Budget Development: This task includes the PI/P Coordinator completing these tasks. For budgeting purposes, the work under Tasks 3, 4, and 5 and the portion of Task 7 which addresses working with other groups is included in this task.	This task has been reduced by about $20,000 compared to FY 95/96 because of the completion of the performance standards and second SWMP.	$90,000	ongoing
	TOTAL	**$530,000**	

Table A6. Municipal Maintenance Activities General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
6.1 Implement and Update Performance Standards: *Tracking* - The General Program will develop and provide deliverable forms to each of the member agencies to document the status of implementation of performance standards as appropriate. The General Program will annually review each municipalities' compliance with the performance standards and provide needed assistance. *Updating Performance Standards* - The General Program will work with the Maintenance Subcommittee and Park and Recreation Workgroup to update existing performance standards as needed. Topics to address include promoting efforts to remove parked cars during street sweeping and enforcement of parking controls. Changes to the performance standards will be submitted to the Management Committee for approval.	Performance standards are the primary method for implementing the Stormwater Management Plan and complying with the requirements of the NPDES. Performance standards should be updated annually to reflect experience gained and lessons learned during the previous year.	$5,000 (the remainder of this budget is under Task 6.6)	Ongoing June 30, 1997
6.2. Develop Additional Performance Standards: The General Program will work with the Maintenance Subcommittee, the Park and Recreation Workgroup, other subcommittees of the ACCWP, other public agencies, flood control districts and private industry as needed to develop additional performance standards/BMPs for up to three new activities. Draft performance standards will be submitted to the Management Committee for approval.	Additional performance standards are needed to address maintenance-related activities not included in the existing performance standards.	$22,000	January - June 1997
6.3 Coordinate with Maintenance-Related Activities by Other Agencies and Private Industries: Workgroups will be formed with appropriate staff from other public agencies and private industries whose work affects municipal maintenance activities to identify activities of concern and possible BMPs. Examples include schools, PG&E, golf courses, private recreational facilities and construction contractors.	Coordination among agencies and industries whose activities affect municipal maintenance will result in greater efficiency and effectiveness in meeting this component's goals.	$0 (Budget is under Task 6.2)	Ongoing
6.4 Identify Maintenance Requirements of Structural Controls to Improve Stormwater Quality and Target Locations for Use: The General Program will work with the Maintenance Subcommittee to identify new technologies for treating stormwater in storm drain inlets and lines and maintenance requirements to help evaluate their feasibility. The General Program will also work with municipalities to target locations for possible use.	NA	$0 (Budget is under Task 6.6)	July - December 1996

Table A6. Municipal Maintenance Activities General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
6.5 Optimize Data Management and Analysis: The General Program will input, review, compile and analyze municipal government maintenance activities information from reports submitted by municipalities and optimize this data management and analysis. The General Program will continue to evaluate the use of the data and make recommendations for future data collection.	NA	$15,000	Ongoing
6.6 Outreach: The general program will provide administrative, regulatory and technical support to the Maintenance Subcommittee, the Park and Recreation Workgroup and other workgroups as needed. Outreach to maintenance staff will also include up to two one-half day workshops conducted to demonstrate existing maintenance procedures and equipment and new technologies. At least one outreach piece (e.g., door hanger) for maintenance staff and/or the public will be developed and distributed. Development of public outreach materials will be coordinated with the Public Information/Participation Subcommittee.	Outreach activities will educate maintenance staff and the public about the ACCWP's goals related to municipal maintenance and provide information on how the public can help the municipalities achieve these goals.	$31,000	Ongoing
6.7 Assist with Implementing NPDES Permit Requirements, Preparing MOU Required Reports and Budget Development: The General Program will prepare reports, budgets and other items to assist with implementation and documentation of this component.	NA	$10,000	Ongoing
	TOTAL	$83,000	

Table A7. New Development and Construction Site Controls General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
7.1 Track Municipal New Development Projects and Stormwater Quality Controls: The General Program will track significant municipal and private development projects and stormwater quality controls in Alameda County. This information will be compiled for inclusion in the annual report. In addition, municipal (primarily Bay Area) measures and policies (general plan sections, ordinances, contract specifications, etc.) to control the quality of stormwater runoff will be compiled and shared with member agencies.	Tracking municipal projects is required in the Regional Board *Staff Recommendations* (document test cases). Measures and policies to control the quality of stormwater runoff are required in the *Staff Recommendations* (D) and the performance standards.	$8,000	September 1, 1996 Ongoing
7.2 Provide Guidance on Cost-Effective Stormwater Quality Controls: Using readily available information, the cost-effectiveness of stormwater quality controls for new residential subdivisions, significant redevelopment projects, or hillside developments will be prepared. The catalogue of control measures will summarize information on the history of use, cost(s), operation and maintenance requirements, and treatment capabilities, if possible.	This task is based on the SWMP.	$12,000	June 30, 1997
7.3 Control Discharges from Construction-Related Activities: This task focuses on working with municipal inspectors to incorporate stormwater quality concerns into routine inspections, document and coordinate findings with the municipality's illicit discharge program, and educate municipal staff on best management practices. Specific items to be addressed will be based on the recommendations from the workshop for municipal inspectors to be conducted in May 1996. Lastly, the General Program will track the State Water Resources Control Board's process and recommendations for renewing the General Permit Construction Activity Stormwater NPDES Permit which expires in August 1997.	Improving construction inspection programs is required in the Regional Board *Staff Recommendations* (G) and the performance standards.	$8,000	ongoing
7.4 Promote outreach: This task includes providing administrative and technical support for monthly New Development Subcommittee meetings, conducting a workshop, if appropriate, and developing educational materials. At least one educational piece will be prepared and distributed for a targeted audience (e.g., Planning Departments, Planning Commissioners, contractors). The General Program will also explore possible home pages for distributing information via the Internet.	This task is based on the SWMP.	$ 35,000	ongoing

Table A7. New Development and Construction Site Controls General Program Work Plan and Budget - FY 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
7.5 Assist municipalities update and implement agreed upon performance standards: • The General Program will develop reporting forms to document the status of implementation of performance standards. • The New Development Subcommittee and Management Committee will review and update, if needed, the performance standards. • The General Program will review each municipalities' compliance with the agreed upon performance standards and notify any municipalities in writing who are not meeting the performance standards.	This task is based on the SWMP.	$2,000 (the remainder of this budget is included in Task 7.4)	October 1, 1996 April 1, 1997 January 1, 1997 March 1, 1997
7.6 Initiate Watershed Resource Inventory and Planning: The New Development Subcommittee will assist municipalities develop criteria for sensitive areas to ultimately be used to identify development opportunities and constraints. Sensitive areas may include wetlands, nature preserves, endangered species habitat and areas based on input from citizens groups.	This task is required in the Regional Board *Staff Recommendations* (A) and the performance standards.	$0 (budget is included in Task 7.4)	by January 1, 1997
7.7 Coordinate with the Flood Control Districts: The General Program will work with the New Development Subcommittee and Flood Control Districts to form a workgroup to initiate discussions on the operation and maintenance of regional flood control facilities.	This task is based on the Regional Board *Staff Recommendations* (K), and the performance standards.	$2,000	June 30, 1997
7.8 Assist with implementing NPDES permit requirements, preparing MOU required reports, and budget development: The General Program will prepare reports, budgets and other items to assist with implementation and documentation of this component.	This task is based on the SWMP.	$10,000	ongoing
	TOTAL	$77,000	

Table A8. Illicit Discharge Controls General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
8.4 Effectively Eliminate Non-stormwater Discharges to the Storm Drains: 8.4.1 Resolve countywide consistency issues through the Industrial & Illicit Discharge Control Subcommittee. 8.4.2 Review component performance standards.	This task is based on the SWMP. Performance standards are reviewed annually and updated as necessary.	$2,000	Ongoing July 1, 1997
8.5 Track and Analyze Illicit Discharge Control Program Findings: 8.5.1 Track field survey and spill response activities countywide submitted in quarterly summary reports. 8.5.2 Illicit Discharge Work Group will analyze information and identify how programs can be improved.	This task is based on the SWMP. One of the component's implementation strategy is to improve the program by learning from previous experiences.	$6,000 ($4,000) ($2,000)	March 1,1997 & September 1, 1997 April 1, 1997 & October 1, 1997
8.6 Share information on identifying Non-stormwater Discharges and Their Sources: Illicit Discharge Work Group will develop general guidance on the types of discharges associated with certain types of activities or categories of dischargers. Share guidance with other ACCWP components through the Management Committee.	This task is based on the SWMP. One of the component's implementation strategy is to improve inter/intra-agency coordination.	$3,000	June 1, 1997
8.7 Conduct Training for Illicit Discharge Inspectors: 8.7.1 Form a Work Group to develop the agenda, workshop handouts, presentation materials,and announcement brochure. 8.7.2 Conduct the workshop.	This task is based on the SWMP.	$10,000	April 15, 1997
8.8 Assist with Implementing NPDES Permit Report Requirements, Annual Action Plans and Budget Development: 8.8.1 Develop report form for the Annual Action Plan. 8.8.2. Compile and summarize General Program and agency-specific activities for reporting to the Regional Board.	This task is based on the SWMP. All agencies will submit their action plan using the same form to help ensure the information reported is consistent countywide.	$4,000 ($2,000) ($2,000)	December 15, 1996 March 1, 1997 & September 1, 1997
	TOTAL	$25,000	

Table A9. Industrial and Commercial Discharge Controls General Program Work Plan and Budget - FY 1996/97

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
9.2 Conduct Facility Inspections and Outreach Activities: 9.2.1 Provide technical and administrative support to the Industrial & Illicit Discharge Control Subcommittee and its Work Groups. 9.2.2 Review component performance standards.	This task is based on the SWMP. Performance standards are reviewed annually and updated as necessary.	$38,000 ($36,000) ($2,000)	 Ongoing October 1, 1996
9.3 Track and Analyze Inspection Findings: 9.3.1 Update and maintain the facility database. 9.3.2 Form a Work Group to decide how the facility database should be used to evaluate the effectiveness of the facility inspection program. Build off of analysis of previous facility database work groups. 9.3.3 Conduct analysis and make recommendations to the Subcommittee for improving facility inspection programs.	Task is based on Draft SWMP. One of the component's implementation strategy is to improve the program by learning from previous inspections. The objective of this task is to use inspection information to improve inspection programs.	$45,000 ($30,000) ($5,000) ($10,000)	 Ongoing December 1, 1996 January 1, 1997
9.4 Share Information on Pollutant Contributions from Facilities: Develop general guidance on the types of business activities with potential to discharge pollutants to the storm drains, and how businesses have eliminated this potential by effectively applying BMPs. Share guidance with other ACCWP components and other stormwater programs.	This task is based on the SWMP. The objective of this task is to use inspection information to review the effectiveness of BMPs and share this information with others.	$8,000	March 1, 1997
9.5 Refine BMP Guidelines: 9.5.1 Form a BMP Work Group to review and update existing BMP guidelines. The BMPs Work Group will also review the need for additional BMPs as directed by the Subcommittee. 9.5.2 Make changes to update existing BMPs, as needed. 9.5.3 Develop additional BMPs, as needed.	This task is based on the SWMP. The objective of this task is to improve ACCWP BMPs based on Task 9.4.	$8,000	 April 1, 1997 to be determined to be determined
9.6 Conduct Training for Facility Inspectors: 9.6.1 Form a Work Group to develop the agenda, workshop handouts, presentation materials, and announcement brochure. 9.6.2. Conduct the workshop.	This task is based on the SWMP.	$12,000	September 1, 1997

Table A9. Industrial and Commercial Discharge Controls General Program Work Plan and Budget - 1996/97 (Continued)

Task Number and Description	Rationale/Background	Budget	Schedule/Due Date
9.7 Assist with Implementing NPDES Permit Report Requirements, Annual Inspection Plans, and Budget Development:	This task is based on the SWMP.	$10,000	December 15, 1996
9.7.1 Develop report form for the Annual Inspection Plan.		($2,000)	March 1, 1997
9.7.2 Compile and summarize General Program and municipality-specific activities for reporting to the Regional Board.		($8,000)	September 1, 1997
	TOTAL	$121,000	

Appendix B

APPENDIX B

PERFORMANCE STANDARDS

ATTACHMENTS:

A Monthly Record Keeping Form
B Protocols for Reporting Enforcement Activities
C Illicit Discharge Inspection Quarterly Summary Report
D Standards Stormwater Facility Inspection Report Form

INTRODUCTION TO PERFORMANCE STANDARDS

Performance standards to be implemented by member agencies have been developed for the following five areas of the SWMP:

- Public Information/Participation,
- Municipal Maintenance Activities,
- New Development and Construction Controls,
- Illicit Discharge Controls, and
- Industrial and Commercial Discharge Controls.

These performance standards define a large part of what each member agency will need to do to implement the SWMP and comply with the NPDES permit. The following provides a brief background on how these performance standards were developed and the process that will be used for their annual review and update, as needed.

BACKGROUND

Based on a meeting between the ACCWP's Policy Level Subcommittee and the Regional Board staff in March 1994, it was agreed that the ACCWP would work through its subcommittees to establish performance standards that define an appropriate level of effort for agency-specific, SWMP activities. The items agreed to by the Policy Level Subcommittee and Regional Board staff were put in writing, adopted by the Management Committee in May 1994, and submitted to the Regional Board staff as a one-page document titled "Agreed Upon Steps to Improve the ACURCWP and Communication with the Regional Board" (Attachment 1).

The performance standards were envisioned as being modeled after the Best Management Practices developed by the Maintenance Subcommittee in 1993. As part of the agreement it was recognized that the performance standards may be tailored to fit the different situations found in various municipalities.

Between March 1994 and December 1995 the subcommittees and Management Committee completed, and submitted to the Regional Board staff, performance standards for the major municipality-specific activities areas listed above. Regional Board staff helped to develop the performance standards for industrial and commercial discharge controls, illicit discharge controls, and public information/participation and has tacitly accepted the performance standards for municipal maintenance activities and new development and construction controls. One of the modifications to the performance standards made in response to Regional Board staff requests was to include a tentative schedule for the implementation of performance standards that are not being implemented currently.

The General Program has the role of advising municipalities on whether they are meeting the agreed upon performance standards and, where a lack of compliance is determined, of providing assistance. The status of each agencies' compliance with the performance

standards will be contained in the annual report to the Regional Board staff. Each subcommittee that developed a set of performance standards has been assigned responsibility for resolving general problems with interpreting and attaining the performance standards and for reviewing and updating them annually, as needed.

TIERS AND PROCESS FOR MODIFYING THE PERFORMANCE STANDARDS

The performance standards are divided into three tiers. Tier I performance standards comprise the baseline level of effort that each agency is required to be currently implementing; Tier II contains performance standards that will be implemented within the next one to five years; and Tier III performance standards contain ideas that will be evaluated further for possible future implementation.

Because very little individual tailoring of the Tier I performance standards has occurred to date, it is possible that some additional future modifications may be needed to better reflect individual member agency situations. In addition, one or two member agencies may not have fully reviewed and recognized the implications of the agreed upon performance standards, and these agencies may eventually need to propose and achieve some reasonable tailoring to fit their local situation.

The Tier II performance standards are on an anticipated time schedule for implementation over the next one to five years. The schedule provided was the best estimate at the time of development of the performance standard. Table B1 summarizes the time periods of Tier II standards for each area of the SWMP. Because the evolvement of performance standards may be faster or slower than originally anticipated, the schedules contained in Tier II are tentative. The shift of a performance standard from Tier II to I will only occur when the ACCWP's Management Committee amends these performance standards based generally on considering the recommendation of the originating subcommittee. Subcommittees will review and update performance standards during the first six months of each fiscal year. In addition, new Tier I performance standards may be identified and adopted without having to first be listed in Tier II.

Tier III represents brainstormed ideas about possible future performance standards that may or may not have sufficient merit for future implementation. The benefit of having Tier III is to identify needs for special studies and other ways to evaluate the listed ideas so that the worthwhile ones are identified and developed for incorporation into Tiers II or I.

TABLE B1. TIER II TIME PERIODS AND DEFINITIONS

Areas of Activity		Time Period
Public Information and Participation		1, 3, or 5 years
Municipal Maintenance		
	Street Cleaning	5 years
	Storm Drainage Facilities and Maintenance of Watercourses	5 years
	Litter Control	5 years
	Road Repair and Maintenance	5 years
	Corporation Yards	5 years
	Pesticide Usage and Pest Management	5 years
	Fertilizer Usage	5 years
New Development and Construction Site Controls		1, 3, or 5 years
Illicit Discharge Control		1 year
Industrial and Commercial Discharge Control		1 year

Definitions

Tier II(1) - Performance standards tentatively scheduled to become Tier I by July 1997.

Tier II(3) - Performance standards tentatively scheduled to become Tier I by July 1999.

Tier II(5) - Performance standards tentatively scheduled to become Tier I by July 2001.

Performance Standards for

PUBLIC INFORMATION AND PARTICIPATION

I. PARTICIPATION IN PI/P SUBCOMMITTEE AND GENERAL PROGRAM ACTIVITIES

Tier I

1. Each agency will designate a person responsible for implementing its Public Information/Participation (PI/P) activities and for acting as a liaison with the PI/P Subcommittee. This designated person will stay sufficiently informed by attending Subcommittee meetings or using other means to participate constructively in PI/P Subcommittee decisions and activities.

2. Each agency will chair the PI/P Subcommittee on a rotating basis so that the burden of providing local leadership for the ACCWP is shared in an equitable manner among all of the agencies.

3. Each agency will complete its PI/P quarter or semiannual deliverable reports within the schedule established by the General Program.

II. INTERNAL AGENCY COMMUNICATION AND TRAINING

City Staff and Officials

Tier I

1. Each agency is responsible for identifying, developing, and communicating information about the ACCWP so that its clean water staff and elected officials are well informed about the requirements of the ACCWP, their role in implementing the ACCWP, and the progress of the ACCWP. This will include the adaptation and/or development and distribution to all municipal staff and elected officials of at least one informational piece annually.

2. New employees involved with ACCWP activities will be provided with information about the ACCWP and the role of the new employee's staff position.

Procedures and Training for Handling Telephone Calls from the Public about Stormwater

Tier I

1. Each agency will have a written procedure that it follows for answering and efficiently routing stormwater related telephone calls to the appropriate municipal staff for handling.

2. Agency staff assigned to answering or responding to telephone calls will be trained and familiar with the established written procedures.

III. USE OF PROGRAM OUTREACH

Distribution of ACCWP Information Pieces

Tier I

1. Each agency will be responsible for identifying how it will distribute copies of General Program informational materials.

2. Within two years of receiving its allotment from the General Program, each agency will have the goal of completing distribution of these materials to the target audience. Approximately one-half or more of the materials should be distributed within twelve months of receiving the allotment.

3. Each agency will be responsible for tracking the number of General Program educational materials distributed with sufficient accuracy to be able to determine the need to re-order, to demonstrate compliance with No. 2 above, and document for NPDES permit reporting.

Storm Drain Inlet Stencils and Signs

Tier II(3)

1. Each municipality will have stencilled or in some other ways signed all of its storm drain inlets or conducted activities that are demonstrably equivalent in terms of achieving awareness by residents that materials should not be disposed down storm drains. Demonstrably equivalent means that the municipality will provide examples of comparable alternative activities or have available a valid survey to show that its residents are as aware of where storm drains lead as are residents in comparable communities with stencils or signs.

2. As a goal all stencils and signs installed will be maintained sufficiently to be readable.

3. In order to provide an educational opportunity, each municipality will optimize the use of local volunteers to assist with the stenciling or signage activities.

IV. AGENCIES' COMMUNITY OUTREACH PROGRAM

Tier I

1. Agencies will participate in community outreach activities from the areas listed below (under A. through F.) for the purpose of communicating the general stormwater pollution prevention message and complementing the General Program's specific message(s) for its targeted audience(s). The following number of different activities that will be participated in annually:

   <u>Over 100,000 in population</u>
   - each municipalities will participate in four events;

Between 50,000 and 100,000

- each municipality will participate in three events;

Less than 50,000; Alameda County Flood Control and Water Conservation District(District); and Zone 7 of District

- each agency will participate in two events.

A. Participate in Existing Community Events

Distribute ACCWP information by participating in existing community events (fairs, festivals, exhibits, etc.) held within its or a nearby jurisdiction. This participation may include the setting up of a booth, kiosk display, or other creative means of communicating the general stormwater pollution prevention message, using a specific message to a target group, or make a presentation to a local community service group.

B. Initiate New Community Events

Play a major role in planning and staging a community or city-wide event, examples include the following:

- Earth Day or other festival or fair;
- Business mixer;
- Seminar or target group; and/or
- Contests.

C. Contact Media and Conduct Advertising

Maintain local media contacts with local newspaper, radio, and television stations to be able to communicate the general stormwater pollution prevention message, complement the General Program's specific targeted audience(s) and message(s) and complement regional PI/P activities. This local media contact may include the adaptation and/or development and distribution of stormwater related press releases or the use of advertising in local telephone directories.

D. Provide Program Information Through Other Venues

The following types of venues may be used:

- Agency newsletter;
- Other municipal newsletter;
- Local magazine;
- Utility bill inserts;
- Mailing to target group; and
- Computer bulletin board or network.

E. Develop and Implement Integrated Outreach Approaches

This area includes approaches that increase the effectiveness of pollution prevention activities as follows:

- Point of purchase display and giveaway;
- Plan create, and distribute videos;
- Create and stage a play;
- Develop special displays or kiosks for your message especially interactive ones (such as slides in movie theaters);
- Develop/implement program for school curriculum and provide equipment;
- Support and partner with other agencies to increase or improve pollution prevention capabilities (e.g., helping set up oil and/or antifreeze collection facilities); and
- Make and place signs on sweepers or other vehicles; and
  Place messages on workers' tee-shirts.

F. Develop Watershed Awareness

This area includes one or more of the following activities:

- Identify and support a friends of a watershed group and encourage creek cleanups (or if this is infeasible, lagoon or shoreline cleanups) or adopt-a-creek or other volunteer monitoring and resource inventorying activities. The friends group for San Leandro Creek should be used as a model;
- Conduct a creek cleanup (or if this is infeasible, lagoon or shoreline cleanups) within its jurisdiction on an annual basis; and
- Participate in a local event in its jurisdiction or neighboring jurisdiction as part of the Coastal Commission's annual Coastal Clean-Up Day and/or as part of Earth Day.

Tier II (3)

1. Participate in twice as many outreach activities annually as listed in Tier I. In addition, one of these will be from "F. Develop Watershed Awareness" to be conducted every other year or more frequently.

2. Each municipality will identify whether there are any special needs of some of its residents. An example of a special need would be if a significant percentage (around 5 percent) of the residents are native speakers of a language other than English or Spanish who would be able to better participate in the municipality's stormwater pollution prevention efforts by having materials available in their native language.

Tier II(5)

1. Each municipality that has identified a special need of some of its residents will develop and distribute the translated materials or other special materials needed to address a special need.

V. COORDINATION WITH PUBLIC SCHOOLS (K-12)

Tier I

1. Information provided by the General Program about the Bay Saver Club, Kids in Creeks workshops, community stewardship grants, or other educational opportunities, will be provided by each municipality to all the public schools within its jurisdiction according to schedules developed by the PI/P Subcommittee.

2. Each municipality will distribute to the public schools in its area computer programs, children's educational activity booklets, and other information the General Program develops or helps develop. This may include disseminating information on how to obtain copies of material if this is a more efficient way to achieve distribution.

Tier III

1. The Program will develop materials for outreach to schools and each municipality will work with the local school district to ensure that appropriate stormwater pollution prevention and aquatic resource protection information is taught to every public school child within its jurisdiction.

VI. NON-COMPLIANCE WITH PERFORMANCE STANDARDS

Tier I

1. If the General Program identifies in writing to an agency that its implementation of these performance standards is deficient, the agency will respond within 30 days with a plan for correction of the deficiencies noted or correct the misinformation that led to the General Program's invalid conclusions. Agencies with deficiencies will notify the Regional Board staff of its recognition of the problems and plan for correction as part of the normal reporting process.

Tier III

1. If the General Program or others have conducted a valid survey of the level of awareness of the stormwater pollution and aquatic resources problems and solutions in each municipality and found that a municipality's residents have less of an understanding of stormwater pollution than comparable communities in the County, the municipality will identify and implement a program within one year to improve its performance in order to attain a level of understanding equivalent to that being achieved in comparable communities.

Performance Standards for

MUNICIPAL MAINTENANCE

Categories of performance standards for Municipal Maintenance Activities, developed by the Maintenance Subcommittee, cover the numerous routine maintenance practices conducted by public works staff such as

- Street Cleaning,
- Storm Drainage Facilities and Maintenance of Watercourses,
- Litter Control, and
- Road Repair and Maintenance.

The goal of these performance standards is to maximize removal of pollutants and/or minimize the discharge of pollutants to storm drain systems. In addition, performance standards were developed for practices such as washing vehicles and equipment and material usage and storage that typically occur in

- Corporation Yards.

The Maintenance Subcommittee has also identified the need to develop performance standards for related activities such as maintenance of parks and other undeveloped lands. Consequently, a Park and Recreation Workgroup was formed consisting of maintenance staff from municipal parks departments and public agencies such as Caltrans, EBMUD, EBRPD. Through this workgroup, performance standards were developed for:

- Pesticide Usage and Pest Management, and
- Fertilizer Usage.

I. STREET CLEANING FREQUENCY

Tier I

1. Each agency will clean streets at least monthly and preferably the same day, and time of day, each month to encourage voluntary removal of parked vehicles.

Tier III

1 Each agency will clean streets in business districts more often than once a month if needed - up to daily during the week.

2. If cleaning streets more frequently than once a month, the agency will maintain its current street cleaning frequency (do not reduce sweeping frequency).

II. STREET CLEANING OPERATION TO MAXIMIZE POLLUTANT REMOVAL

Tier I

1. Each agency will clean streets so that they look clean and no dirt tracks, trails or debris are visible.

2. Each agency will check that street cleaning equipment is in proper adjustment.

3. Each agency should operate street cleaning equipment at the speed specified by the manufacturer.

4. Each agency will minimize the number of operators assigned to each machine.

5. When using broom sweepers, the agency will check that the appropriate weight on main and gutter brooms are used.

6. Each agency will discourage allowing residents to "opt out" of the municipalities' street cleaning program.

Tier II(5)

1. When purchasing new sweepers, the agency will review alternative equipment and new technologies to maximize pollutant removal.

Tier III

1. Each agency will provide resources to maintain schedules if there is a holiday that week, staff are absent due to illness, or there is equipment failure, within one day of regularly scheduled day.

2. Each agency will schedule routes such that operators are working in close proximity to provide back-up if necessary.

3. Each agency will identify the most efficient street sweeping techniques (equipment, etc.) and begin phased purchase as allowed by budget constraints.

III. PROBLEMS ASSOCIATED WITH EFFICIENT STREET CLEANING

Getting Parked Cars Off Streets

Tier I

1. Each agency will maintain a consistent sweeping schedule.

Tier II(5)

1. Each agency will develop and distribute newsletters and other public education materials notifying residents and businesses of street sweeping schedules and/or

2. Post temporary "no stopping, no parking" signs in business districts, near large apartment complexes, etc.

Tier III

1. Each agency will post permanent street sweeping signs on streets where appropriate and enforce. OR,

2. Each agency will post temporary "no stopping, no parking" signs in Business Districts, near large apartment complexes, etc.

Removing Large Accumulations of Leaves Just Prior to Sweeping

Tier I

1. Each agency will investigate alternative methods of handling leaf fall and develop an appropriate leaf removal program, such as:

   - Operate street cleaning equipment in tandem;
   - Utilize a leaf removal machine just prior to street cleaning;
   - Utilize a front end loader with a dump truck just prior to cleaning; and/or
   - Encourage residents to collect and compost leaves or coordinate with a local composting program. If composting is infeasible, agencies should schedule for removal of bagged leaves.

Planting and Maintaining Trees Near Streets

Tier I

1. Each agency will provide operators with adequate resources to conveniently report

trees interfering with street cleaning.

Tier III

1. Each agency will trim trees to allow street cleaning equipment to pass under them.

2. Each agency will plant trees which do not require frequent trimming and whose roots will not destroy curbs as city street trees.

IV. SPILL RESPONSE

Tier I

1. See procedures under Storm Drainage Facilities and Maintenance of Watercourses.

V. RECORD KEEPING

Tier I

1. Each agency will track miles swept using a broom odometer or by tracking mileage only when cleaning (do not include mileage to an area).

2. Each agency will track volume or weight of material removed each street cleaning day.

3. Each agency will identify and target areas for: 1) more frequent cleaning throughout the year or just prior to the rainy season; 2) additional efforts to remove vehicles; 3) distributing public education materials to discourage illegal dumping, etc.

VI. CONTRACT SWEEPERS

Tier I

1. Each agency will specify in all new or re-bid contracts that in case of equipment failure, back up equipment must be available to ensure that the route is completed that day, and that all information necessary for record keeping will be provided.

VII. DISPOSAL OF STREET SWEEPING MATERIALS

Tier I

1. Each agency will ensure proper handling and disposal of material removed from streets to prevent discharges of pollutants to surface waters or groundwater.

I. ROUTINE INSPECTION AND CLEANING

Tier I

1. Each agency will inspect storm drainage facilities (inlets, culverts, V ditches, pump stations, open channels and watercourses), at least once a year, preferably prior to the rainy season, and clean as necessary.

2. When cleaning storm drain inlets and lines, each agency will remove the maximum amount of material at the nearest access point to minimize discharges to watercourses.

Tier II(5)

1. Each agency should develop a storm drainage facility inspection and maintenance plan. The plan shall include:

   a. Schedule for inspecting storm drainage facilities;

   b. Rationale for determining when to clean inlets, etc.;

   c. Results of an evaluation to install additional screens or grates near or in inlets to inhibit discharge of litter, but where flooding is not a concern;

   d. Identification of target areas for cleaning and/or public education; and

   e. Inventory of the storm drain system.

Tier III

1. Each agency will inspect storm drainage facilities twice a year: prior to the rainy season to prevent flooding and discharge of pollutants, and after the rainy season to remove pollutants and encourage proper disposal of waste material and to clean as needed. (Inlets which are clear of debris may discourage people from dumping wastes.)

2. Each agency will inspect storm drain inlets monthly during the wet season in areas suspected of containing illegal dumping, and clean as necessary.

3. When sweeping over storm drain inlets with broom sweepers, each agency will use the gutter broom only to remove as much debris as possible. The agency will keep the rear broom outside the grate area to prevent pushing debris into the inlet.

II. RECORD KEEPING

Tier I

1. Each agency will report the amount of material removed when cleaning storm drainage facilities in monthly record keeping forms.

2. Each agency will document and track spill incidents and response to spill incidents either as described in the "Monthly Record Keeping Form" (Attachment A) or as part of the Illicit Discharge Quarterly Summary Form (Attachment C).

3. Each agency will track storm drain inlets which require more frequent cleaning than once or twice a year for additional cleaning, different type of cleaning, and/or public education efforts.

4. Each agency will document and maintain the following records monthly for pump stations and watercourses:

   a. Areas/sites inspected,

   b. Silt and vegetation removal practices,

   c. Areas where man-made materials are removed, type and estimate of volume removed,

   d. Disposal practices and any testing results,

   e. Spill incidents and follow-up actions,

   f. Application of chemicals (type used, areas applied), and

   g. Areas for possible improvements.

III. DISPOSAL OF MATERIAL

Tier I

1. Each agency will store material removed from storm drainage facilities on a concrete pad or other type of impermeable material (during the rainy season, cover with impermeable material) and drain wastewater to the sanitary sewer or allow to evaporate to prevent discharges to the storm drain system. Agencies will dispose of the material at an appropriate facility.

IV. SPILL RESPONSE

Tier I

1. If the spill is suspected to be toxic or hazardous materials, maintenance staff will call the public safety dispatcher, 911, and/or the local illicit discharge coordinator.

2. If non-hazardous materials are spilled, maintenance staff should contain the spill area immediately to prevent additional dumping and discharge of pollutants into the storm drain system and clean as soon as practicable.

3. Each agency will establish response/removal procedure for spills after work hours with the illicit discharge coordinator.

4. Maintenance staff will report spills to, and work with, the municipalities' illicit discharge coordinator, or appropriate party, to determine the appropriate follow up response (e.g., track the source of the spill and identify product labels that have a bar code identifying the originating agency, contact Building and Planning Departments, send a clean-up bill to the responsible party, etc.).

Tier III

1. Each agency will request that local Fire and Police Departments respond to spills with engines and sirens to attract public attention.

2. Each agency will mail "notice of violation" letters and send copies to local Fire and Police Departments and Regional Board staff for possible future enforcement action.

V. GEOGRAPHICAL PROBLEM AREAS

Tier II(5)

Steep and Narrow Streets Where It Is Difficult to Use Street Sweepers or Vacuum Equipment

1. Instead of flushing streets and allowing water to drain into storm drain inlets, each agency will:

   a. Encourage residents to maintain streets by removing leaves, litter, etc.,

   b. Cover storm drain inlets, flush streets, and manually remove material.

   c. Flush streets, allow material to drain into storm drain inlets, etc. and collect debris downstream at clean outs or catch points.

Areas Where Cars Are Always On the Street and Temporary Posting Is Not Feasible

1. Instead of flushing streets and allowing water to drain into storm drain inlets, each agency will post temporary signs to remove cars and sweep according to posted schedule.

2. If flushing streets, the agency will cover the storm drain inlet, and remove material manually or using vacuum equipment.

3. The agency will consider posting No Parking signs on cleaning days to increase accessibility.

VI. INSPECTION AND MAINTENANCE

Tier I

1. Each agency will inspect pump stations after the wet season and develop a time schedule for maintenance activities prior to the next wet season.

2. Each agency will inspect trash racks and oil absorbent booms after significant storms. Remove debris in trash racks and replace oil absorbent booms as needed.

VII. PERMITS AND OTHER REGULATORY REQUIREMENTS

Tier I

1. Each agency will coordinate with the California Department of Fish and Game, the U.S. Army Corps of Engineers, and other agencies as appropriate in order to comply with regulatory requirements prior to commencing work.

VIII. TARGET AREAS FOR IMPROVEMENTS

Tier II(5)

1. Each agency will evaluate additional areas for trash racks, oil absorbent booms, outlet protection etc. to enhance watercourses.

2. Each agency will identify illegal dumping hot spots and communicate findings with the Illicit Discharge Coordinator for your municipality. Agencies will conduct regular inspections, posting and clean-up to discourage additional dumping incidents. Each agency will consider fencing off areas to minimize dumping.

3. Each agency will coordinate with local law enforcement officials to enforce laws in targeted areas to prevent illegal dumping.

IX. PESTICIDE USE

Tier II(5)

1. Each agency will eliminate the use of pesticides containing copper as an active ingredient such as copper sulphate used as an algicide in fountains and drinking water reservoirs especially if discharges may ultimately reach watercourses or San Francisco Bay.

2. Each agency will apply chemicals according to manufacturers' registered labelling.

X. DESILTING AND DISPOSAL

Tier II(5)

1. Each agency will minimize desilted areas and disturbance of channel bottoms during desilting. (Organic matter and fine clay particles may help adsorb metals.)

2. Each agency will dispose of desilted material properly and will not allow it to re-enter the watercourse after removal.

XI. VEGETATION

Tier II(5)

1. Each agency will consider retaining (design approved) low growing vegetation in channel bottoms and slopes to detain runoff, trap sediment and enhance riparian habitat when evaluating the need to maintain channel design capacity.

XII. VOLUNTEER MONITORING AND CLEAN UP

Tier II(5)

1. Each agency will work with volunteer citizen groups interested in monitoring and clean-up of watercourses and related trails and pathways.

2. Each agency will participate in the California Coastal Commission's annual "Adopt a Beach/Watercourse" clean up day in September each year. The agency will provide supplies such as garbage bags and arrange removal of bagged garbage. The agency will also organize and participate in additional clean up days in targeted areas as appropriate.

Tier I

1. Each agency will provide an adequate number of litter receptacles in commercial areas and other litter source areas. Agencies will make every effort to contain litter in receptacles.

2. Each agency will pick up litter receptacles on a frequent enough basis to prevent spillage.

Tier III

1. Each agency will encourage public education efforts to include an anti-littering message. The agency will specifically encourage: 1) residents to compost yard waste; 2) residents and businesses to remove litter from their property and properly containerize waste; and 3) owners of loading docks, restaurants and other litter source areas to sweep outdoor areas daily and properly containerize waste.

2. Each agency will encourage local law enforcement personnel to post signs and enforce anti-littering laws especially for owners of vacant lots where litter accumulates.

3. Each agency will document and maintain the following records monthly:

   a. Areas targeted for litter removal,

   b. Total amount of material removed, and

   c. Amount of material which should have been disposed as household hazardous waste or recycled.

4. Each agency will label litter receptacles with anti-littering messages when possible.

I. GENERAL PRACTICES

Tier I

1. Each agency will schedule excavation and road maintenance activities for dry weather.

2. Each agency will inspect and repair leaking equipment daily.

3. Each agency will perform major equipment repairs at the corporation yard, when practical.

4. When refueling or maintaining vehicles and equipment on-site, each agency will use a location away from storm drain inlets and creeks.

5. Each agency will recycle used motor oil, diesel oil, concrete, broken asphalt, etc. whenever possible.

6. Each agency will train employees in using these BMPs.

Tier II(5)

1. Each agency will contain diesel oil used to lubricate or clean equipment or parts.

II. ASPHALT/CONCRETE REMOVAL

Tier I

1. Each agency will take measures to protect storm drain inlets prior to breaking up asphalt or concrete (e.g., place hay bales or sand bags around inlets). The agencies will clean afterwards by sweeping up as much material as possible.

2. After breaking up old pavement, each agency will remove and recycle as much as possible to avoid contact with rainfall and storm water runoff.

3. During saw-cutting operations, each agency will block or berm around storm drain inlets using hay bales or an equivalent appropriate filter device, or absorbent materials such as pads, pillows and socks to contain slurry. If slurry enters the storm drain system, the agency will remove material immediately.

4. Each agency will remove saw-cut slurry (e.g., with a shovel or vacuum) before leaving at the end of the day.

III. PATCHING AND RESURFACING

Tier I

1. Agencies will not stockpile materials in streets, gutter areas or near storm drain inlets or creeks unless these areas are protected.

2. Each agency will cover and seal manholes before applying seal coat, slurry seal, etc. Agencies will prevent material from entering storm drain inlets and clean them if needed.

3. Agencies will never wash excess material from exposed aggregate concrete or similar treatments into a street or storm drain inlet. Each agency will designate an unpaved area for clean up and proper disposal of excess materials.

4. Agencies will use only as much water as necessary for dust control - avoid runoff.

5. Each agency will sweep up as much material as possible and dispose of properly. Agencies will only wash down streets if runoff is controlled or contained.

6. Each agency will catch drips from paving equipment with pans or absorbent material placed under the machines or berm the area around them.

7. Each agency will clean up all spills and leaks from other equipment and work site areas using "dry" methods (absorbent materials and/or rags). The agency will properly dispose of absorbent materials and rags. If spills occur on dirt areas, the agency will dig up and remove contaminated soil properly and on a timely basis.

8. After the job is complete, each agency will remove stockpiles (asphalt materials, sand, etc.) within five days and other extra materials immediately.

Tier III

1. If it rains unexpectedly, each agency will take appropriate action to prevent pollution of storm water runoff (e.g., divert runoff around work areas).

IV. SIGNING AND STRIPING

Tier I

1. Each agency will store spill absorbent materials on trucks to be used in the event of a spill.

2. Each agency will contain and clean up waste materials and dispose them of properly according to the Material Safety Data Sheet.

V. EQUIPMENT CLEAN UP/STORAGE

Tier I

1. Each agency will flush sprayer paint supply lines at the corporation yard. Agencies will use approved collection methods and dispose or recycle waste materials at an approved hazardous waste facility.

2. Each agency will clean sprayers, patch and paving equipment at the end of the day. Agencies will use approved collection methods and dispose or recycle waste materials at an approved facility.

Tier III

1. Each agency will cover sprayers, patch and paving equipment to prevent rainfall from contacting pollutants.

REFERENCES

Alameda Countywide Clean Water Program, New Development Subcommittee, BMP flyers, March 1995 (adapted from the Santa Clara Valley Nonpoint Source Pollution Control Program).

The Asphalt Institute, April 1965, The Asphalt Handbook (Manual Series No. 4).

I. GENERAL BMPS

Tier I

1. Each agency will assign one person the responsibility for ensuring that BMPs are implemented. This person will also be responsible for ensuring that all persons using the facility are aware of BMPs.

2. Each agency will prepare spill containment kits and store them in locations that have potential for spills (fueling areas, etc.).

3. Each agency will stencil inlets to the storm drainage system with a message such as "No Dumping, Drains to Bay".

4. Each agency will refer to existing plans (e.g., Hazardous Materials Business Plans and/or Spill Prevention Control and Countermeasures Plan), incorporate storm water BMPs in annual updates, and periodically review with persons using the facility.

5. Each agency will conduct facility surveys annually - possibly in conjunction with hazardous materials management and/or spill prevention inspections.

6. Each agency will propose structural modifications in FY 1994/95 budget, if appropriate, to ensure that washwater is directed to the sanitary sewer or recycled as soon as possible. In the interim, the agency will implement temporary measures to minimize the discharge of pollutants.

7. Each agency will prepare a Storm Water Pollution Prevention Plan (SWPPP) for each facility.

Tier II(5)

1. Each agency will consider developing and posting BMPs for other municipal public agencies that use its corporation yard.

2. Each agency will develop educational materials and post them in appropriate areas.

II. WASHING VEHICLES/EQUIPMENT

Tier I

1. Each agency will clean all vehicles/equipment on designated wash pad areas.

2. Each agency will wash vehicles and equipment off-site if needed so washwater drains to the sanitary sewer or is recycled.

Tier II(5)

1. Each agency will discharge washwater to the sanitary sewer or recycle. The agency will check with the local POTW regarding pretreatment requirements.

2. Each agency will ensure that wash pad area and sump are large enough so that all washwater drains to the sanitary sewer or recycling system. The agency will re-grade area if necessary or install dikes to convey washwater.

3. Each agency will monitor wash pad area to make sure it is consistently used.

4. Each agency will consider assigning schedules for use of wash pad area, if appropriate.

III. REFUSE HOLDING AREAS

Tier I

1. Each agency will store material removed from storm drainage facilities and streets on a concrete or asphalt pad in a contained area. The agency will drain liquids to the sanitary sewer or allow it to evaporate. During the rainy season, the agency will cover the area.

IV. FUEL DISPENSING AREAS

Tier I

1. Each agency will store spill containment kits nearby. If spills occur, the agency will use dry methods to clean the fueling area and follow procedures in the Hazardous Materials Business Plan (HMBP) and/or Spill Prevention Control and Countermeasure Plan.

2. Each agency will train employees in proper fueling and cleaning procedures.

Tier II(5)

1. Each agency will install signs reminding people not to "top off" tanks.

2. Each agency will discourage mobile fueling. If mobile equipment is fueled with a mobile fuel truck, the agency will establish a designated area for fueling.

Tier III

1. Each agency will cover fuel dispensing area. The agency will not conduct fueling over open ground (ground should be covered by concrete or asphalt protected with a sealant).

2. Each agency will design the fueling area to prevent "runon" of storm water and runoff of spills.

V. CHEMICAL STORAGE

Tier I

1. Each agency will store paint and other chemicals in an approved covered containment area. The agency will design the floor inside so that any spilled materials will be contained and easily removed. The agency will keep all 55 gallon drums containing hazardous materials or waste closed when not filling or emptying. The agency will label the outside according to Department of Transportation regulations. The agency will also protect the area from vandalism.

2. If 55 gallon drums containing hazardous materials or wastes are stored outside, each agency will keep drums in an approved containment area. Each agency will ensure that all of the drums are closed with tight-fitting lids.

3. Each agency will review the HMBP for hazardous materials storage requirements.

4. Each agency will review Material Safety Data Sheets to ensure that incompatible materials have the appropriate separation.

VI. CHEMICAL USAGE

Tier I

1. Each agency will ensure that necessary safety equipment and spill containment kits are readily accessible in areas where chemicals are used. The agency will inspect safety equipment (eye flushing stations, etc.) regularly to ensure they are operational.

2. Each agency will review Material Safety Data Sheets.

3. Each agency will minimize use of chemicals. The agency will use water-based paints and non-toxic chemicals as much as possible.

4. Each agency will dispose of excess chemicals at an Alameda County Household Hazardous Waste Facility.

Oil-based Paints

5. Each agency will wipe paint out of brushes. The agency will filter and reuse thinners or dispose as hazardous waste. The agency will dispose of the excess paint as hazardous waste or recycle it.

Water-based Paints

6. Each agency will rinse paint out of brushes and discharge rinsewater to the sanitary sewer. The agency will dry excess paint in cans and dispose of the cans in the trash. If there is too much paint to dry, the agency will dispose of the paint as hazardous waste or recycle it.

Automotive Fluids

7. Each agency will collect used fluids and dispose of them at an appropriate facility or recycle them.

Pesticides

8. See procedures under Pesticide Usage and Pest Management.

Solvents/Cleaning Solutions

9. Each agency will properly dispose of or recycle used solvents/chemicals.

VII. FLEET MAINTENANCE/VEHICLE PARKING AREAS

Tier I

1. Each agency will inspect equipment for leaks on a regular basis. The agency will use drip pans under leaky vehicles. The agency will repair vehicles with significant leaks.

2. Each agency will drain and replace motor oil and other fluids in a covered shop area. If fluids are changed outdoors, the agency will designate an area where there are no connections to storm drains or the sanitary sewer and where spills can be easily cleaned up.

3. Each agency will periodically dry sweep the area.

VIII. AUXILIARY STORAGE AREAS/YARDS

Tier I

1. Each agency will store chemicals in appropriate areas.

Tier III

1. Each agency will drain all fluids from vehicles and equipment. The agency will store materials under cover, if possible.

IX. GENERAL HOUSEKEEPING

Tier I

1. Each agency will inspect the yard routinely to ensure that there are no illegal discharges to the storm drain system and that during storms, pollutant discharges are controlled to the maximum extent practicable.

2. Each agency will keep chemical storage areas neat and orderly.

3. Each agency will sweep the corporation yard. The agency will dispose of material removed from streets and storm drainage facilities often to minimize exposure to rainwater and runoff to the storm drain system.

I. GENERAL BMPS

Tier I

1. Each agency will consider all alternatives for pest control including:

   a. No controls,

   b. Physical/mechanical controls (hand labor: EBCC and county work furlough crews, etc.),

   c. Cultural controls (mulching, alternative vegetation, prescribed burns)

   d. Biological controls (predators, parasites, goats, etc.),

   e. Less toxic chemical controls (e.g., soaps and oils), and/or

   f. Hot water.

2. Each agency will use the least toxic pesticides[1] that will do the job, provided there is a choice. The agency will take into consideration the LD_{50}, overall risk to the applicator and impact to the environment.

3. Each agency will follow all federal, state and local laws and regulations.

   a. Federal: U.S. EPA Air and Toxics Division, Pesticides 415-744-1087,

   b. State: Cal-EPA Department of Pesticide Regulation 916-445-4300,

   c. Local: Alameda County Agricultural Commissioner 510-670-5232

4. Appropriate agency personnel will read and follow label instructions.

5. Each agency will encourage applicators to attend U.C. Cooperative Extension classes, Pesticide Applicator Professional Association meetings and other professional avenues for continuing education.

6. Agencies will contact the U.C. Statewide IPM Project (916-752-7671), the U.C. Cooperative Extension Office (510-670-5200) as well as private consulting firms, and libraries for information on integrated pest management.

Tier III

1. Each agency will use state-certified pesticide applicators.

[1] Public agencies in Alameda County primarily use herbicides.

II. PESTICIDE USAGE

Tier I

1. Each agency will review the history of a site and determine pest conditions. Each agency will monitor problem areas periodically in order to identify level of pest condition. Each agency will establish an individual action threshold for each pest species as part of a pesticide use decision. Regular monitoring will detect whether pest populations are approaching or exceeding the established action threshold.

2. Each agency will apply pesticides at the appropriate time to maximize their effectiveness and minimize the likelihood of discharging non-degraded pesticides in stormwater runoff.

3. Agencies will not mix or load pesticides adjacent to a storm drain inlet, culvert or watercourse.

4. Each agency will select pesticides and application techniques along road sides which will retain some vegetative cover to help prevent soil erosion, trap pollutants and slow the rate of stormwater runoff, where possible.

5. Each agency will calibrate field equipment prior to use to ensure desired application rate. Agencies will mix only as much material as necessary for treatment.

6. Each agency will follow all legal requirements for Pesticide Management Zones (defined as areas where specific pesticide residues have been detected in groundwater) in Section 6800, Title 3 of the California Code of Regulations.

7. Each agency will train applicators in the safe use of pesticides and proper inspection of applicator equipment to prevent accidental pesticide leaks, spills and hazards to applicators and the environment.

Tier II(5)

1. Each agency will maintain a record of all treatments including pesticide use for each site.

2. Each agency will notify the public prior to spraying as needed or if requested.

III. COPPER AS AN ACTIVE INGREDIENT

Tier I

1. Each agency will minimize the use of copper-based pesticides. If applying copper as a algicide, the agency will consider using a chelated form of copper for greater solubility (less settling to the bottom).

2. Each agency will summarize annual copper usage (including usage by contractors) and provide this information to the Alameda Countywide Clean Water Program's General Program by February 15 for the previous calendar year.

Tier III

1. Each agency will eliminate the use of copper-based pesticides (when a comparable alternative exists).

IV. DIAZINON AS AN ACTIVE INGREDIENT

Tier I

1. Each agency will explore the possibility of using biological controls or less toxic chemicals before using diazinon (known to cause toxicity in aquatic life (*Ceriodaphnia dubia*/water flea) to manage a pest problem.

2. Each agency will promote public outreach efforts which educate homeowners about the effects of home use of diazinon (generally used to control ants) and other insecticides on aquatic life. Each agency will encourage the General Program to contact the Department of Pesticide Regulation to elicit their help similar to the program underway for home use of copper-sulfate root killer.

Tier III

1. Each agency will eliminate its use of diazinon.

V. PESTICIDE STORAGE

Tier I

1. Each agency will contact the local fire department and Alameda County Agricultural Commissioner to determine and implement storage requirements for pesticide products. The agency will provide secondary containment for liquids if required.

2. Each agency will prepare spill kits, store the kits near pesticides, and train employees to use them.

3. Each agency will store pesticides and other chemicals indoors in a locked and posted storage unit.

4. Each agency will store pesticides in labeled containers.

VI. PESTICIDE DISPOSAL

Tier I

1. Each agency will rinse empty pesticide containers and empty rinsewater in the spray per California Code of Regulations requirements.

2. Each agency will dispose of triple rinsed empty pesticide containers according to recommendations of the Alameda County Agricultural Commissioner and the manufacturer.

3. Each agency will try to find a qualified user for any unwanted pesticides, or return to the manufacturer if unopened. If disposal is required, the agency will contact Alameda County's household hazardous waste collection program to make an appointment (670-6460 8:30 A.M. - 5:00 P.M. Monday - Friday).

4. If changing pesticides or cleaning spray tanks, the agency will use tank rinsewater as product over a targeted area within the application site.

REFERENCES

California Code of Regulations, Title 3, Section 6800.

California Environmental Protection Agency Department of Pesticide Regulation, Sampling for Pesticide Residues in California Well Water 1994 Update, December 1994.

Conservation Technology Information Center, "Scorecard for Farmers and Ranchers" in EPA's Nonpoint Source News-Notes, January/February 1995.

Santa Clara Valley Nonpoint Source Pollution Prevention Program, "Landscaping, Gardening and Pool Maintenance."

I. GENERAL BMPS

Tier II(5)

1. Each agency will work with the Public Information/Participation Subcommittee to develop educational materials to distribute to designers of golf courses, golf course operators, landscape service companies and nurseries.

2. Each agency will refer to these standards in contract specifications.

II. FERTILIZER APPLICATION

Tier I

1. Each agency will avoid applications if runoff is probable. On hillsides, the agency will avoid applying more water than the soil can absorb.

2. Prior to applying fertilizer, each agency will check the nitrogen/phosphorus/potassium (N/P/K) concentrations and calibrate the distributor to avoid excessive application.

3. Each agency will check irrigation equipment prior to applying fertilizer to make sure it is working properly. The agency will monitor irrigation systems to avoid over watering.

4. Each agency will avoid high applications when usage by the crop is low.

Tier II(5)

1. Each agency will confine fertilizer to targeted area. If fertilizer has been applied to hardscape areas (e.g., roadways, walkways, paved surfaces), the agency will sweep, vacuum, or blow back fertilizer from these areas before irrigating and/or rainfall. Agencies will not wash down hardscape areas.

Tier III

1. Each agency will use a drop spreader within the first four feet of paved surfaces.

III. PARK AND GENERAL LANDSCAPE AREAS

Tier I

1. Each agency will select fertilizers to suit local soil conditions, climate and plant health.

2. Each agency will fertilize plants based on plant type, physical appearance, soil or foliage testing.

Tier III

1. To avoid over application, each agency will test soil and/or plant tissue for nutrients and trace elements prior to applying fertilizer at least once a year. If **copper** is not needed, the agency will eliminate it from the micro-nutrient blend.

IV. GOLF COURSES

Tier I

1. Each agency will distribute this information performance standard to municipal golf course operators.

Tier II(5)

1. Each agency will test well water or other irrigation source water (e.g, for nitrates) to help determine fertilizer needs.

2. Each agency will test soil and foliage in **greens and tees** at least once a year to determine need for applications. If **copper** is not needed, the agency will eliminate it from the micro-nutrient blend.

Tier III

1. Each agency will design golf courses to restore and/or maintain riparian areas/wetlands and establish vegetation buffer zones along sensitive wetland areas to reduce runoff into waterways. Also, the agency will consider using detention ponds to control runoff and remove excess nutrients and/or divert excess irrigation water to areas where it can be used (e.g., roughs).

2. Each agency will prepare a management plan which includes: 1) a comprehensive review of existing practices; and 2) a plan for fertilizer (and pesticide) use to minimize the amount needed and to control runoff.

3. Each agency will test soil and foliage in **fairways** at least once a year to determine need for applications. If **copper** is not needed, the agency will eliminate it from the micro-nutrient blend.

V. FERTILIZER STORAGE

Tier I

1. Each agency will store fertilizers indoors or in a shed or storage cabinet.

REFERENCES

Farm Chemicals Handbook, 1990.

Performance Standards for

NEW DEVELOPMENT AND CONSTRUCTION SITE CONTROLS

I. MEASURES AND POLICIES TO CONTROL THE QUALITY OF STORMWATER RUNOFF

Tier II(1)

1. Each agency will incorporate the New Development Subcommittee's **conditions of approval** into its standards for development, as appropriate.

2. Each agency will document in conditions of approval permanent erosion and stormwater quality controls, controls during construction, and operation and maintenance of structural controls.

Tier II(5)

1. Each agency will review existing legal authority provided in erosion control and stormwater management and discharge control **ordinances** to determine the ability to implement General Plan policies and authorize discretionary review of development projects. If necessary, the agency will amend existing ordinance(s) or develop and adopt ordinances.

2. Each agency will develop and adopt **design guidelines and practices** which incorporate water quality protection measures.

3. Each agency will ensure that stormwater quality requirements are included **in plans and contract specifications** for municipal construction projects.

Tier II(*)[1]

1. Each agency will incorporate policies and implementation measures which will help preserve and enhance water quality in **General Plans**. Agencies will designate specific areas as "water-quality sensitive" to control the quality of stormwater runoff in these areas, if applicable.

II. EDUCATIONAL ACTIVITIES

Tier I

1. Each agency will provide educational materials (BMP flyers, Blueprint for a Clean Bay, etc.) to the public and its staff.

2. Each agency will educate its staff responsible for development application and plan review on stormwater quality issues and controls. Agencies will provide information on municipal design guidelines, ordinances, conditions of approval, contract specifications and protected sensitive areas.

3. Each agency will educate construction site inspectors on proper implementation and maintenance of erosion and sediment controls and materials/waste management BMPs.

---

[1] Implement when General Plans are amended.

4. Each agency will conduct in-house training to municipal staff (e.g., plan checkers, construction, capital improvement, permit, public works and/or building inspectors) on a regular basis as needed (suggest one hour/quarter).

Tier II(5)

1. Each agency will develop and provide pre-application materials containing information on stormwater controls and requirements to developers. One example is BASMAA's site planning and design guidance manual to be developed during FY 1995/96.

Tier III

1. Agencies will attach appropriate BMP flyer(s) to building permits.

III. DEVELOPMENT APPLICATION AND PLAN REVIEW

Tier I

1. Each agency will evaluate the effect of development on stormwater runoff and wetlands in the CEQA process (e.g., use a revised checklist).

Tier II(1)

1. Agencies will require developers to address site planning and design techniques to prevent and minimize impacts to water quality. These may include the following:

   a. Minimize land disturbance.

   b. Minimize impervious surfaces (e.g., roadway width) especially directly connected impervious areas (DCIA).

   c. Use of clustering.

   d. Preservation of quality open space.

   e. Maintain (and/or restore, if possible) riparian areas and wetlands as project amenities, establishing vegetation buffer zones to reduce runoff into waterways.

2. Each agency will require developers to evaluate permanent stormwater quality controls in their application if sufficient site planning measures are not implemented or feasible.

IV. EROSION AND SEDIMENTATION CONTROL

Tier I

1. Each agency will review its erosion control program for adequacy. Based on the *Recommendations* and ABAG's Manual of Standards for Erosion and Sediment

Control Measures, develop a plan for improving the program as needed in the following areas:

a. enforcement authority (grading, erosion and/or stormwater control ordinances),

b. minimum BMPs required,

c. training and tools for inspectors,

d. information for developers and contractors.

2. As a condition of issuance of a grading permit, each agency will require developers to prepare, submit to the municipality for review and approval, and implement an effective erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Tier II(5)

1. Each agency will implement any tasks required to improve its erosion control program, identified in Tier I #1.

2. Each agency will require developers to provide permanent erosion and stormwater controls on plans submitted for projects.

V. STATE GENERAL PERMIT

Tier I

1. Prior to construction of a project that disturbs ≥ 5 acres, each agency will require a copy of the **Notice of Intent (NOI)** sent to the State Water Resources Control Board for coverage under the General Construction permit.

Tier III

1. Prior to construction of a project that disturbs ≥ 5 acres, each agency will require a copy of the project Storm Water Pollution Prevention Plan.

2. Each agency will require that projects which disturb < 5 acres prepare and submit an abbreviated Storm Water Pollution Prevention Plan (SWPPP) prior to the start of construction activity, to demonstrate that the owner, developer, and/or contractor has considered what BMPs are appropriate for protection of stormwater quality. Agencies will define and provide examples of the contents of the abbreviated SWPPP (e.g., the Fairfield-Suisun Urban Runoff Management Program's brochure).

3. Each agency will coordinate construction inspections and enforcement of corrective actions with Regional Board staff, if appropriate.

VI. CONSTRUCTION SITE FIELD INSPECTIONS

Tier I

1. Inspectors will review the Storm Water Pollution Prevention Plan, if available, prior to conducting the inspection.

2. During inspections, inspectors will:

   a. Inspect for and effectively prohibit non-stormwater discharges.

   b. Whenever possible, visually observe the quality of stormwater runoff after a major storm event.

   c. Require proper implementation and maintenance of erosion control and materials/waste management BMPs (e.g., covering stockpiled materials, designating work and storage areas) to minimize the discharge of pollutants.

3. If appropriate, inspectors will require problems to be corrected and will document illicit discharges (or contact your Illicit Discharge Coordinator) so that illicit discharges are reported to the General Program in the Illicit Discharge Inspection Quarterly Summary Report.

VII. WATERSHED RESOURCE INVENTORY AND PLANNING

Tier II(1)

1. Each agency will determine criteria for sensitive areas.

Tier II(3)

1. Each agency will review existing information on sensitive areas and watershed maps (e.g., from General Plans, the Alameda/Contra Costa Biodiversity Group, Bay Area Digital Geographic Resource (BADGER), San Francisco Estuary Project, Alameda County Flood Control & Resource Conservation District).

Tier III

1. Each agency will evaluate the need for conducting a watershed resource inventory to identify and map sensitive areas, and to use as a tool for identifying development opportunities and constraints. If appropriate, agencies will develop an approach and schedule for conducting a watershed resource inventory based on guidance from the Regional Board (e.g., from the Local Government Watershed Protection Project) and existing information as it becomes available.

VIII. COORDINATION WITH THE ALAMEDA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT (ACFC&WCD) AND ZONE 7 OF THE ACFC&WCD

Tier II(3)

1. Each agency will initiate discussions with the New Development Subcommittee to establish policies on the operation and maintenance of regional flood control facilities to maximize stormwater quality control benefits.

Tier III

1. Each agency will develop operation and maintenance agreements for regional flood control facilities which maximize stormwater treatment, if appropriate.

IX. SUBCOMMITTEE MEETINGS AND WORKSHOPS

Tier I

1. At least one representative from each agency will attend ACCWP annual workshops.

2. Each agency will chair the New Development Subcommittee on a rotating basis so that the burden of providing leadership is shared equitably.

3. Each agency will designate a person responsible for implementing the New Development component and for acting as a liaison with the New Development Subcommittee. This designated person will stay informed sufficiently to participate in New Development Subcommittee decisions and activities.

Tier III

2. A designated person from each agency will attend all New Development Subcommittee meetings. Or, agencies will appoint one representative for multiple jurisdictions.

Performance Standards for

ILLICIT DISCHARGE CONTROL

I. DEVELOP AN ILLICIT DISCHARGE INSPECTION CONTROL PROGRAM

Tier I

1. Each agency will prepare a written Action Plan that demonstrates the agency's commitment to conducting effective investigation, tracking, and elimination of illicit discharges and describes the level of effort for conducting these activities in the following fiscal year. The Action Plan will demonstrate that the agency has:

   a. Identified, verified and prioritized field screening areas for investigation and/or repeat inspections.

   b. Developed a schedule for conducting investigations of the high priority areas during the coming year.

   c. Selected which agency or group will conduct the field activities and estimated the number of labor hours required to implement the program.

   d. Determined how the illicit discharge investigations will be implemented.

   e. Established how activities will be documented (e.g., by including sample inspection forms).

   f. Adopted the minimum enforcement procedures.

   g. Developed procedures for follow-up enforcement or referral to another agency, including appropriate time periods for action.

   The Action Plan will be submitted to the Regional Board every year with the ACCWP Fiscal Year-End Report.

2. Each agency will ensure that designated illicit discharge inspectors are trained. Agencies will provide inspectors with the knowledge and skills necessary to conduct effective field investigations, with guidance from the Industrial & Illicit Discharge Control Subcommittee and the Regional Board staff.

3. Each agency will develop or obtain accurate maps of the agency's storm drain system including major drain segments, reaches, and outfalls within the agency's jurisdiction.

4. Agencies will survey high priority areas (defined in the Action Plan) at least once per year. The goal is to survey the agency's drainage area during the five year period.

Tier III

1. Include in the Action Plan an evaluation of inspection results from the previous year and an assessment of which types of non-stormwater discharges were most prevalent. Determine and implement appropriate outreach efforts to reduce these discharges.

2. Expand the illicit discharge inspection program to include medium or low priority field screening sites, until the entire drainage area of the agency has been inspected once.

3. Determine the appropriate frequency for repeat inspections of medium and low priority areas based on an investigation of the agency's entire drainage area.

4. Utilize the electronic information on significant storm drainage facilities and screening points to track illicit discharges from neighboring jurisdictions which may enter the agency's storm drain system.

II. CONDUCT FIELD INVESTIGATIONS

Tier I

1. Each agency will conduct field investigations which include inspecting portions of the municipal storm drain system for potential sources of illicit discharges. Inspectors will:

   a. Survey high priority areas (defined in the Action Plan) and make observations. Record observed or suspected dry weather flows.

   b. As possible, attempt to determine the type of flow and try to trace the flow to its source by following storm drain maps, inspecting manholes, and making surface observations. Record findings.

   c. If the responsible party is identified, educate the party on the impacts of his or her actions, explain the stormwater requirements, and provide BMPs, as appropriate. Initiate follow-up and/or enforcement procedures, if applicable. (Follow-up and enforcement are detailed further in Section III below.) Record activities.

2. Each agency will send at least one representative to General Program workshops to obtain additional training and share experiences with other agencies. The Industrial & Illicit Discharge Control Subcommittee will annually assess inspector training needs.

III. EVALUATE COMPLIANCE OF NON-STORMWATER DISCHARGER

A. Follow-up Activities

Tier I

If the discharge is traced to a residential source, inspectors will conduct the following or coordinate the following with the appropriate agency.

1. Each agency will continue inspection and follow-up activities until compliance is achieved. Record activities.

2. Agency staff will meet with the responsible party to discuss methods of eliminating the illicit discharge, including disposal options, recycling and possible discharge to the

sanitary sewer, as appropriate. In the case of discharges of wash waters, refer to the incremental BMPs in *Recommended Discharge Elimination/Disposal Priorities for Wash Waters* (September, 1994). Provide Program information to the responsible party.

3. The appropriate agency will begin enforcement procedures, if appropriate.

If the discharge is traced to a commercial or industrial activity, inspectors will coordinate information on the illicit discharge with the industrial and commercial discharge control program.

B. Enforcement

Tier I

1. Agencies will conduct enforcement activities and report these activities as outlined in the *Protocol for Reporting Enforcement Activities (Protocols)* adopted by the Industrial & Illicit Discharge Control Subcommittee and the Management Committee (Attachment A). These activities are set forth by the individual municipality ordinances.

2. Agencies will provide inspectors with sufficient responsibility and authority to initiate enforcement procedures.

Tier III

1. Agencies will develop criteria that would initiate each enforcement level described in the *Protocols*. The criteria will be developed by the Industrial & Illicit Discharge Control Subcommittee to help ensure enforcement actions are conducted consistently throughout the county.

IV. INVESTIGATE SPILL REPORTS/COMPLAINTS

Since a network of spill response and clean up programs already exists, establishing a new and separate stormwater response program would duplicate many of the services already being provided by these programs. The approach of the ACCWP illicit discharge control component is to supplement these services and respond to spill incidents that are not under the purview of previously existing clean-up programs. Within this context, each agency will assure that the following occurs.

Tier I

1. Inspectors will investigate spill reports and/or complaints within their jurisdiction and record their activities.

2. Inspectors will become familiar with the existing spill response and clean-up programs that cover the agency's jurisdiction, and coordinate illicit discharge program activities with these existing programs.

3. Through internal communication and public education, agencies will encourage the use of "911" to report large or hazardous spills. If the use of "911" is not appropriate in a particular agency, establish and publicize an alternative telephone number for reporting spills.

4. Each agency will establish a mechanism for obtaining information about spill incidents so that source identification and follow-up actions can be conducted.

Tier III

1. Each agency will identify an appropriate role for its participation in spill response drills, in cooperation with other agencies or industries, and ensure that adequate spill response supplies are available.

V. DOCUMENT AND REPORT COMPLETION

Tier I

1. Each agency will summarize field investigations and follow-up activities every three months using the Illicit Discharge Inspection Quarterly Summary Report form (Attachment B). These forms will be incorporated into the ACCWP's semi-annual reports to the Regional Board.

2. Each agency will document the number and types of spill incidents reported and responded to within the agency's jurisdiction, based on direct calls, "911" dispatch records, referrals from the General Program, and other sources. (Agencies do not need to document or report automotive fluid spills.) This information will be incorporated into the ACCWP's semi-annual reports to the Regional Board.

3. Each agency will review annually the Illicit Discharge Action Plan and investigation results; each agency will assess whether goals were met and what changes or improvements are necessary. This review will be incorporated into the ACCWP's Fiscal Year-End Report to the Regional Board.

Tier III

1. Agencies will develop a computerized data management system for managing and tracking information collected during field investigations and follow-up activities. Information will be linked through a data management system to storm drain and area maps through a GIS or other system to improve coordination and efficiency of future activities.

Performance Standards for

INDUSTRIAL AND COMMERCIAL DISCHARGE CONTROL

I. DEVELOP A INDUSTRIAL AND COMMERCIAL BUSINESS INSPECTION PLAN

Tier I

1. Each agency will prepare a written Inspection Plan that outlines specific steps the agency will take to conduct effective facility inspections in the following fiscal year. The written Inspection Plan will consist of:

   a. A review of the types of businesses within its jurisdiction that accounts for the variability of business types, complexity, and number;

   b. A listing by category of business types that have greater potential to cause stormwater pollution;

   c. A priority list of businesses or business types that includes the number of facilities that will be inspected during the coming fiscal year; and

   d. As appropriate, a summary of efforts to coordinate inter/intra-agency issues.

   The Inspection Plan will be submitted to the Regional Board every year with the ACCWP Fiscal Year-End Report.

2. Each agency will ensure facility inspectors are adequately trained. This includes the knowledge and skills necessary to conduct effective stormwater inspections, with direction from the Industrial & Illicit Discharge Control Subcommittee.

3. Each agency will inspect high priority facilities (defined in the Inspection Plan) at least once per year. The goal is to inspect the business community that has the potential to impact stormwater quality, at least once during the five year permit period.

Tier II(1)

1. Each agency will evaluate inspection results from the previous year to assess which industry types had the most impact on stormwater quality. Adjustments to the Inspection Plan will be made based on this assessment.

Tier III

1. Agencies will coordinate outreach information with other ACCWP subcommittees and stormwater inspection programs if such information is found to be effective

2. Each agency will expand the inspection program to include additional types of outreach and inspection activities. Such activities may be identified by the Subcommittee at a future date.

II. INSPECTION ACTIVITIES

A. Preparing for the Site Visit

Tier I

1. Inspectors will review existing information on the site and its regulatory history.

2. Whether the inspector notifies the facility representative of an inspection prior to the visit is discretionary.

B. During the Site Visit

Tier I

1. Inspectors will review the facility layout to locate the storm drain system and/or stormwater drainage path storage areas, process areas, vehicle and heavy equipment wash and maintenance areas, and stormwater sampling locations, if applicable.

2. Inspectors will review/inspect the following for the potential to discharge pollutants from non-stormwater discharges or exposure to runoff:

   a. Outdoor process/manufacturing areas;

   b. Outdoor material storage areas;

   c. Outdoor waste storage and disposal areas;

   d. Outdoor vehicle and heavy equipment storage and maintenance areas;

   e. Outdoor parking areas and access roads;

   f. Equipment on rooftops;

   g. Outdoor wash areas;

   h. Outdoor drainage from indoor areas, and

   i. Stormwater conveyance system maintenance, and emergency response practices.

3. Inspectors will collect the information on the most recently adopted Standard Industrial and Commercial Business Inspection Report (Attachment C).

4. Inspectors will use the facility's SWPPP, if available, as a tool in assessing the facility's stormwater pollution control activities. This will not imply review or approval of the adequacy of the SWPPP.

5. Inspectors will identify and inform the facility representative about problems and violation(s), if applicable. A schedule for correcting problems identified during the inspection and a means for verifying its implementation will be coordinated between

the inspector and the facility representative. This information will also be noted on the inspection form.

6. Inspectors will provide facility representatives with appropriate BMP information, education materials, and inter/intra-agency referrals as appropriate.

7. Inspectors will obtain ongoing training to support inspection activities and to continue to improve program implementation. Inspector(s) representing each agency will attend General Program inspector training workshops. The Industrial & Illicit Discharge Control Subcommittee will assess annually inspector training needs.

III. EVALUATING FACILITY COMPLIANCE

A. Repeat/Follow-up Inspection

Tier I

1. The inspector will determine if the facility is in compliance with the agency's stormwater ordinance (i.e. there are no unpermitted non-stormwater discharges and pollutant exposure to rain is minimized).

2. Inspectors will prioritize the facility for re-inspection. If a problem was identified during the inspection, inspectors will perform a follow-up inspection or initiate a self-certification process where the facility representative certifies in writing that the problem has been removed or corrected within the time specified by the inspector.

3. Inspectors will begin enforcement procedures, if appropriate.

B. Enforcement

Tier I

1. Agencies will conduct enforcement activities and report these activities as outlined in the *Protocol for Reporting Enforcement Activities (Protocols)* adopted by the Industrial & Illicit Discharge Subcommittee and the Management Committee (Attachment B). These activities are set forth by the individual agency ordinances.

IV. REPORTING

Tier I

1. Each agency will review annually the Inspection Plan and inspection results and assess whether goals were met. This review will be incorporated into the ACCWP's Fiscal Year-End Report to the Regional Board.

ATTACHMENTS A

MONTHLY RECORD KEEPING FORM

ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM
Municipal Government Maintenance Activities
FY 1995/96 Monthly Record Keeping Form

Month of: _____

Municipality: _____

Completed by: _____ **Date:** _____

STREET CLEANING

1. Sweeping	Volume of material collected (cubic yards)	Miles swept* (curb miles)
Residential Areas:		
Broom	_____	_____
Regenerative Air	_____	_____
Vacuum	_____	_____
Commercial Areas:		
Broom	_____	_____
Regenerative Air	_____	_____
Vacuum	_____	_____
Industrial Areas:		
Broom	_____	_____
Regenerative Air	_____	_____
Vacuum	_____	_____
Other Areas Swept: (e.g., parking lots, major arterials)		
Broom	_____	_____
Regenerative Air	_____	_____
Vacuum	_____	_____
TOTAL	_____	_____

2. Have there been any changes in your street sweeping program? (efforts to have parked cars removed, changed sweeping frequency, new equipment, significant downtime, etc.)

_____
_____
_____
_____
_____

LEAF REMOVAL

Volume of leaves removed by City crews: _____ cubic yards

Leaves bagged by residents and picked up by City: _____ bags

Check box if you do not have a leaf removal program other than routine street sweeping: ☐

* Report total miles covered by sweepers including areas operated in tandem or repeated.

EOA, Inc.
November 1995

ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM
Municipal Government Maintenance Activities
FY 1995/96 Monthly Record Keeping Form

Month of: _____

Municipality: _____

Completed by: _____ **Date:** _____

MAINTENANCE OF STORM DRAINAGE FACILITIES

	Inspected		Cleaned	
Number of storm drain inlets	_____		_____	
Number of cross culverts, conduits, and/or culverts used to convey stormwater around street corners	_____		_____	
V ditches	_____	miles	_____	miles
Storm drain lines	_____	miles	_____	miles
Channels	_____	miles	_____	miles
Creeks	_____	miles	_____	miles
Culverts	_____	linear feet	_____	linear feet
Number of junction boxes	_____		_____	
Number of pump stations	_____		_____	

Other (please specify) _____

_____

Total volume of material removed _____ cubic yards or _____ tons

Describe any observed illegal discharges or illicit connections below or check the box if activities are included in the Illicit Discharge Quarterly Summary Form: ☐

_____

_____

_____

_____

Have you responded to complaints or noticed areas which should be targeted for more frequent cleaning?

Yes _____ No _____ If yes, explain _____

_____

_____

_____

LITTER CONTROL

	Areas Targeted	Volume Removed
City/County Personnel (including receptacles)	_____	_____
Court Referred Crews	_____	_____
Other (e.g., contractors)	_____	_____
Total (specify cubic yards or pounds)		_____

ATTACHMENTS B

PROTOCOLS FOR REPORTING ENFORCEMENT ACTIVITIES

Alameda Countywide
Clean Water Program
A Consortium of Local Agencies

To: ACCWP Management Committee

From: Industrial & Illicit Discharge Control Subcommittee

The Subcommittee recommends the following breakdown of ACCWP follow-up/enforcement activities for reporting to the Regional Board. After some discussion, the Subcommittee decided not to include in the countywide protocol, specific time schedules for follow-up activities (e.g., written response, re-inspection, etc.) since an acceptable time to respond will vary on a case by case basis depending on the complexity of the site and the severity of the impact. However, it is understood that ACCWP agencies will escalate the level of enforcement until compliance is achieved. The Subcommittee agrees that this is a minimum procedure and does not prevent a municipality from skipping phases for more serious problems, as appropriate.

PROTOCOL FOR REPORTING ENFORCEMENT ACTIVITIES

Level I Enforcement (Warnings) Includes verbal notice to the facility owner/operator that is documented on the inspection form. This could also include a written informational letter to the facility owner/operator to follow-up inspection findings. A time frame to correct the identified problem should be specified based on the severity or complexity of the problem.

Level II Enforcement (Administrative Actions) Similar to Level I but with a more structured/formal notice or process. This includes a Notice of Violation, Cease and Desist Order, Order to Abate, Notice to Clean or any other similar notification outlined in the municipality's storm water ordinance that identifies a problem, requires correction or abatement but does not assess fines. A time frame to correct the identified problem will be specified based on the severity or complexity of the problem.

Level III Enforcement (Administrative Actions With Fine and/or Cost Recovery) Fine(s) are assessed administratively and/or the municipality's abatement costs are recovered.

Level IV Enforcement (Legal Actions) Includes any action taken by the municipality that brings the facility into the court system (e.g., Citation, Court Action, etc.).

ATTACHMENTS C

ILLICIT DISCHARGE INSPECTION QUARTERLY SUMMARY REPORT

Illicit Discharge Inspection Quarterly Summary Report

Fiscal Year: _____

Municipality: _____

Contact: _____ Phone: _____

Reporting Period: ☐ July, August, September ☐ October, November, December
☐ January, February, March ☐ April, May, June

I. Field Activities/Investigations

1. *Describe amount inspected.*	Industrial Areas	Commercial Areas	Residential Areas
Number of Screening Points			
Channel Miles (miles)			
Drainage Area (acres)			

2. *List how many discharges were identified by the following methods.* Include only discharges that could have been prevented by best management practices (BMPs). Do not include fluid releases associated with minor traffic accidents.

Field surveys/investigations	
Other (calls from the public, staff, other agency, etc.)	

3. *List the number of times the following materials were identified.*

Construction Materials	
Sewage	
Food Waste	
Automotive Fluids (antifreeze, used motor oil, fuels, etc.)	
Yard Waste (lawn clippings, pet droppings, etc.)	
Other: _____	
_____	
_____	

II. Follow-up Activities

1. *Describe whether sources of discharges were identified.*

Number of Sources that were identified	
Number of Incidents when source of discharge was not identified	

2. *Describe whether discharges were abated.*

Number of Discharge Incidents that were abated	
Number of Incidents where discharge is continuing to occur, as of the end of the reporting period. Attach the inspection report of these discharges.	

3. *Describe follow-up activities conducted.*

Number of informational, educational, and BMP information distributed _____

Informal Violations _____ Formal Violations _____

Legal Actions _____

ATTACHMENTS D

STANDARDS STORMWATER FACILITY INSPECTION REPORT FORM

Alameda Countywide
Clean Water Program

Municipality: _____

Date: _____

Standard Stormwater Facility Inspection Report Form

·son for Inspection: ☐ First Inspection ☐ Routine Inspection ☐ Response to Complaint			☐ Facility has closed or Facility Information has changed
.ME OF FACILITY		SITE ADDRESS	
CONTACT NAME	PHONE	BUSINESS TYPE/ACTIVITY	SIC

Is the property owner different than the facility owner? ☐ yes ☐ no If yes, complete the following:

NAME PHONE

MAILING ADDRESS

Is the facility covered under any other programs or permits? (Check all that apply.)

☐ None ☐ Sanitary sewer
☐ Air quality ☐ Hazmat business plan ☐ Underground storage tanks ☐ Aboveground storage tanks
☐ Fire department(hazmat storage) ☐ Hazmat waste generator ☐ Other _____

Is the facility covered under a storm water permit? ☐ Does not need Coverage ☐ No, but may need to be (Refer to Regional Board)
☐ Individual ☐ General: Does the facility have a SWPPP? ☐ yes ☐ no

N/A = Not Applicable; PTNL = POTENTIAL for Pollutant Discharge: 1 = low potential, 2 = medium potential, 3 = high potential
ACTUAL Type of Discharge: BMP: 0 = BMPs are effective, 1 = BMPs are fairly/almost effective, 2 = BMPs are not effective, 3 = No BMPs are implemented
PEX = Pollutant Exposure, NSW = Non-Stormwater Discharge

AREAS OF ACTIVITY	N/A	PTNL	ACTUAL Type of Discharge			REMARKS: Describe recommendations, requirements, and time to implement. Check box if remark is a *requirement.*
			BMP	PEX	NSW	
A. Outdoor Process/Manufacturing Areas						☐
B. Outdoor Material Storage Areas						☐
.. Outdoor Waste Storage/Disposal Areas						☐
D. Outdoor Vehicle and Heavy Equipment Storage, Maintenance Areas						☐
E. Outdoor Parking Areas and Access Roads						☐
F. Outdoor Wash Areas						☐
G. Rooftop Equipment						☐
H. Outdoor Drainage from Indoor Areas						☐
I. Other (describe):						☐

ADDITIONAL COMMENTS/REMARKS

☐ See attached for more comments.

FIRST Follow-up Inspection (Date & Findings)	SECOND Follow-up Inspection (Date & Findings)

IORITY FOR RE-INSPECTION: ☐ 1; First ☐ 2; Second ☐ 3; Third

.NFORCEMENT: ☐ None ☐ Verbal Notice ☐ Warning Notice ☐ Administrative Action ☐ Administrative Action w/ Penalty &/or Cost Recovery ☐ Legal Action

Facility Representative Signature: _____ Date: _____

Print Name of Facility Representative: _____ Inspector's Signature: _____

Appendix C

APPENDIX C

LISTS OF MUNICIPAL STORMWATER ORDINANCES ADOPTED; GENERAL PROGRAM AGREEMENTS; GENERAL PROGRAM REPORTS AND GUIDANCE DOCUMENTS; AND EDUCATIONAL MATERIALS DEVELOPED DURING THE INITIAL NPDES PERMIT PERIOD

MUNICIPAL STORMWATER ORDINANCES ADOPTED

Municipality	*Stormwater Management and Discharge Control Ordinance*	
	Ordinance Number	**Date Adopted**
City of Alameda	2605	May 1992
City of Albany	92-001	December 1992
City of Berkeley	6216	October 1993
City of Dublin	9-92	June 1992
City of Emeryville	92-01	January 1992
City of Fremont	2012	June 1992
City of Hayward	92-10	May 1992
City of Livermore	1379	March 1992
City of Newark	284	June 1992
City of Oakland	11590	June 1993
City of Piedmont	535	March 1992
City of Pleasanton	1572	July 1992
City of San Leandro	92-011	July 1992
City of Union City	382-92	April 1992
Unincorporated Alameda County	92-51	August 1992

GENERAL PROGRAM AGREEMENTS

Agreement to Implement the ACURCWP, April 1991 - 1997 (The Alameda County Flood Control District offered to execute reimbursement agreements with seven cities "to support new and expanded activities required by the General and Individual Programs to the extent funding is available".)

Memorandum of Understanding (MOU) to Coordinate Industrial/Business Storm Water Pollution Control Activities Conducted by the Alameda County Urban Runoff Clean Water Program and the California Regional Water Quality Control Board San Francisco Bay Region, June 1992

GENERAL PROGRAM REPORTS AND GUIDANCE DOCUMENTS

Title	Date of Distribution
A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program	June 1991
Pilot Study: Illicit Discharge Identification and Elimination Program Report	August 1991
Sediment and Storm Runoff Concentrations of Copper, Zinc and Lead in the Crandell Creek DUST Marsh System	September 1991
Minimum Procedures, Qualifications, and Standards for Conducting Industrial Inspections for the ACURCWP	October 1991
Loads Assessment Report	October 1991
Handling Inquiries for the Public (Reference Manual)	December 1991
Municipal Maintenance Monthly Record Keeping Form	June 1992
Best Management Practices for Municipal Maintenance Activities	July 1992
Industrial and Commercial Business Inspectors Training Manual	July 1992
Survey Results: Industrial and Commercial Businesses	July 1992
Field Manual: Illicit Discharge Identification and Elimination Program	August 1992
Storm Water Quality Controls for New Development in Santa Clara Valley and Alameda County: A Guide for Controlling Post-Development Runoff Report	August 1992
Planning Procedures Guidance Manual for New Development	August 1992
Management of Storm Water Facilities in Alameda County	August 1992
Public Information/Participation Plan	August 1992
Desktop Computer Mapping Pilot Project	November 1992
Labelling of Storm Drainage Facilities	January 1993
Annual Monitoring Report FY 1991/92	March 1993

Title	Date of Distribution
Data Management Needs Assessment	June 1993
FY 92/93 Municipal Maintenance BMP Handbook	June 1993
FY 91-92 Storm Water Monitoring Data Analysis	FY 1992/93
Evaluation of Vegetated Channels	FY 1992/93
Habitat Inventory of K-Line Adjacent to Alameda Creek	FY 1992/93
Municipal Government Maintenance Activities Database Management System	November 1993
Minimum Enforcement Protocols	December 1993 (Revised February 1996)
Illicit Discharge Field Investigation Form	January 1994
Illicit Discharge Source Identification Form	January 1994
Survey of Public Attitudes and Awareness	February 1994
Storm Inlet Pilot Study	March 1994
Vegetated Channel Study	March 1994
FY 1992/93 Annual Monitoring Report (Vol. I & II)	March 1994
Draft DUST Marsh Special Study, FY 92-93	April 1994
FY 93/94 Municipal Maintenance BMP Handbook	June 1994
Survey of Current Inspection Procedures	June 1994
Survey of Public Awareness of Advertising Campaign	July 1994
Identification and Control of Toxicity in Storm Water Discharges to Urban Creeks	August 1994
Roof Runoff Water Quality: A Literature Review	August 1994
Draft Technical Memorandum: Folsom/Huntwood or Quail Run Detention Basin Retrofitting Technical Feasibility Study	
Storm Drain and Screening Point Mapping Report	September 1994
DUST Marsh Selenium Study	October 1994
General Guidance for Monitoring Effectiveness of Post-Construction Structural BMPs	November 1994
BMP Effectiveness Monitoring	November 1994
Street Sweeping/Storm Inlet Modification Literature Review	December 1994
Vegetated Channels Feasibility Study	December 1994
Guidance for Preparing Performance Standards for Municipality-Specific Activities	January 1995

Title	Date of Distribution
Survey of Public Awareness of Advertising Campaign	January 1995
DUST Marsh Special Study FY 1993/94	January 1995
Detention Basin Study	February 1995
Integration of the Watershed Management Approach in the Storm Water Management Plan	September 1995
Annual Monitoring Report FY 1993-94	September 1995
Heavy Metals in Fish and Invertebrates in the DUST Marsh	December 1995
DUST Marsh Long-Term Evaluation Plan	December 1995
Citizens Monitoring	January 1996
Draft Annual Monitoring Report FY 1994-95	March 1996
Fiscal Year-End Annual Reports (1991/92 - 1994/95)	annually on September 1
Mid-Fiscal Year Progress Reports (1992/93 - 1995/96)	annually on March 1
Task and Budget Status Reports for General Program Activities (July 1992 - December 1995)	compiled quarterly

PUBLIC INFORMATION/PARTICIPATION MATERIALS

FY 1992/93

"The Bay Begins at Your Front Door" brochure

"NO DUMPING DRAINS TO BAY" mylar stencil

Kids in Creeks workshop manual

"Bugged?" Integrated Pest Management brochure

Three newspaper advertisements

"Exploring the Estuary" computer program

"The Urban Runoff Story" video

Auto Wrecking, auto body repair, and auto radiator service facilities BMP brochures

"Best Management Practices for Storm Water and Industrial Sanitary Sewer Pollution Control" pamphlet and poster

FY 1993/94

1993/94 Media Advertising Campaign - Newspaper ads, billboards, busboards

ACURCWP Press Kit

ACURCWP Monthly Press Releases

ACURCWP Radio PSAs

Tabletop Diorama Display

San Francisco Bay Saver Club Material Kit

Restaurant BMPs flyer

Storm Water Pollution Prevention is Everybody's Business flyer

Good Housekeeping Practices flyer

Industrial and Commercial BMPs flyer

Building Maintenance/Remodelling BMPs flyer

Auto Body Repair and Refinishing -- and Fishing BMPs brochure

Auto Radiator Service -- and Fishing BMPs brochure

Auto Wrecking -- and Finishing BMPs brochure

"Best Management Practices for Industrial Storm Water Pollution Practices" booklet

FY 1994/95

ACCWP Monthly Press Releases

ACCWP Radio PSAs

Two PURE Water Reports

"The Bay Begins at Your Front Door" Spanish and Vietnamese camera-ready versions

Children's Clean Water Activity booklet

Finish the Pour Right BMPs flyer

Parking Lots BMPs flyer

Outdoor Storage for Dry Materials BMPs flyer

Oudoor Storage for Liquid Materials BMPs flyer

FY 1995/96

Home automotive maintenance brochure

Home maintenance brochure

Periodic press releases

Starting a New Business? flyer

Appendix D

APPENDIX D

BYLAWS OF THE ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM'S MANAGEMENT COMMITTEE

The "Agreement to Implement the Alameda County Urban Runoff Clean Water Program" states that the Management Committee created pursuant to this agreement shall adopt bylaws for its governance. The following bylaws were originally adopted by the Management Committee on March 24, 1992 and have been amended since then to incorporate new procedures.

Article I

Section 1. Office of the Management Committee

The official office and mailing address of the Management Committee will be:

Alameda County Flood Control and Water Conservation District
951 Turner Court, Room 300
Hayward, CA 94545

Section 2. Meeting Place of the Management Committee

The Management Committee will normally meet at the following location:

Centennial Hall
Hayward, California

Anytime unexpected and temporary changes to the meeting place are necessary, the Chairperson shall find an alternative location and notify the Management Committee representatives and alternates.

Section 3. Regular Meetings.

The Management Committee will meet on an as needed basis typically as follows:

fourth Tuesday of a month
from 9:30 A.M. to no later than noon

Anytime unexpected and temporary changes to the meeting date and time are necessary, the Chairperson shall set an alternate date and time and notify the Management Committee representatives and alternates.

Section 4. Procedures

Except as provided by the Management Committee by a vote, the procedures to be followed by the Management Committee at its meetings and at any of the subcommittee meetings shall be that set forth in Deschler's Rules of Order. The failure to adhere to Deschler's Rules of Order shall not, however, result in the voiding of any action taken by the Management Committee.

Section 5. Chairperson/Vice Chairperson

The Chairperson of the Management Committee shall be the Management Committee representative from the Alameda County Flood Control and Water Conservation District (District). The Vice Chairperson shall be the alternate representative from the District or such person designated by vote of the Management Committee.

Section 6. Updating of Cost and Voting Shares

The "Agreement to Implement the Alameda County Urban Runoff Clean Water Program" provides that the cost and voting shares shall be updated based on changes in population and area at appropriate intervals as specified in the bylaws. This recalculation of cost and voting shares occurred in January 1992 for a five year period beginning in fiscal year 1992/93 (Attachment A), and cost and voting shares will be re-calculated every five years thereafter.

Section 7. Mailing List and Written Record of Meetings

A Management Committee mailing list consisting of member agencies and other interested parties shall be maintained for distribution of information about Management Committee meetings. The Management Committee may vote to charge for the costs associated with maintaining non-members on the mailing list. The District shall maintain and update this mailing list at least annually.

A written record shall be kept for at least five years of all Management Committee meetings and votes. The District shall maintain these records.

Section 8. Subcommittees

Subsection 8.1 General Information on Subcommittees

The Management Committee shall establish subcommittees to help implement the Stormwater Management Plan (Plan) for the Alameda Countywide Clean Water Program. Any of the current standing subcommittees may be eliminated and new subcommittees may be created by vote of the Management Committee to address short-term or long-term issues.

Each subcommittee shall designate a chairperson annually by simple majority vote of the subcommittee members.

Each subcommittee shall appoint a representative responsible for reporting to the Management Committee. Subcommittees shall provide recommendations on policy, fiscal, and substantive technical issues to the Management Committee for its consideration. In formulating these recommendations, the subcommittee members shall strive to reach a consensus, but if this is impossible, alternate recommendations and their rationale shall be reported to the Management Committee.

Subsection 8.2 Existing Standing Subcommittees and Their Objectives

The following standing subcommittees currently exist and their objectives are as described:

Policy Level Subcommittee: The objective of this subcommittee is to develop recommendations on policy and budget issues for the Management Committee.

Monitoring and Special Studies Subcommittee: The primary objective of this subcommittee is to provide management and technical review and guidance on activities being undertaken by the Program. This subcommittee will also assist in coordinating technical activities such as stormwater monitoring, special studies, watershed pilot projects, and other technical aspects of the Program with regional agencies such as BASMAA, the Regional Board, the S.F. Estuary Project and other local programs as necessary to assure that the goal and results of activities beneficial to all are shared and undertaken in a cost effective manner.

Public Information and Participation Subcommittee: The objective of this subcommittee is to help guide the implementation of the Public Information/Participation Component (Section 5) of the Plan.

New Construction and Development Subcommittee: The objective of this subcommittee is to serve as a center for exchange of information and as a means to provide guidance and assistance to the Management Committee for activities related to the New Development and Construction Controls Component (Section 7) of the Plan.

Maintenance Subcommittee: The objective of this subcommittee is to provide outreach to the municipal employees conducting maintenance activities; to identify, develop, and disseminate information on Best Management Practices to improve the pollutant removal effectiveness of these activities; and to aid the implementation of the Municipal Maintenance Activities Component (Section 6) of the Plan.

Industrial & Illicit Discharge Control Subcommittee: The objective of this subcommittee is to aid in the implementation of the Illicit Discharge Controls (Section 8) and Industrial and Commercial Discharge Controls (Section 9) Components of the Plan in a consistent manner county-wide. This includes establishing BMPs for use by commercial/industrial businesses and establishing consistent inspection, outreach, and compliance procedures and materials for use by inspectors.

Subsection 8.3 Subcommittee Membership and Membership Lists

Membership on the subcommittees shall be open to any representative or alternate of the Management Committee, to any employee recommended by a NPDES co-permittee agency, and to any other members which the Management Committee determines are needed to conduct the subcommittee's work. The chairperson of each subcommittee will be responsible for maintaining a list of each subcommittee member's name, address, phone numbers, and affiliation. Updated lists will be provided to the Management Committee as requested by the Chairperson of the Management Committee or by any Management Committee representative or alternate.

Subsection 8.4 Responsibilities for Providing Meeting Information

The Chairperson of the Management Committee shall be responsible for reporting subcommittee meeting dates, times, and locations at each Management Committee meeting for the subsequent month. The chairperson of each subcommittee will be responsible for providing this information to the Management Committee's Chairperson or his/her designee at least one week prior to each Management Committee meeting.

The chairperson of each subcommittee will be responsible for maintaining written documentation of subcommittee deliberations and recommendations to the extent needed to achieve the subcommittee's objectives.

Section 9. Amendment of Bylaws

These bylaws may be revised and amended at any time by a vote of the Management Committee.

Section 10. Public Participation

The Alameda Countywide Clean Water Program is a program funded by the public, and whose success depends on the active support and participation of its citizens. One of the major components of the Plan is to provide public information and encourage public participation to effectively control the diffuse sources of pollutants characteristic of urban runoff.

The Management Committee's policy is to encourage public input at its meetings. All meetings of the Management Committee are open to the public and notices of these meetings are distributed to any interested party who has requested placement on the Management Committee mailing list as described in Section 7 of the Bylaws. The public will be provided an opportunity to comment on items the Management Committee is considering for adoption or any other issues appropriate for the Management Committee to consider. The amount of time available for each member of the public to speak will be limited to a total of 5 minutes per Management Committee meeting. Exceptions to the time limits may be made on a case by case basis as agreed to in advance by the Policy Level Subcommittee.

Subcommittee meetings and workshops are staff functions generally closed to the public. Attendance by the public shall only be by invitation of the Subcommittee or its chair.

Section 11. Procedures for Budget Decision Making

The Management Committee's role in establishing and modifying the General Program's budget is described in the "Agreement to Implement the Alameda County Urban Runoff Clean Water Program." This agreement requires that "No action shall be taken by the District which requires expenditures by any party other than the District without prior Management Committee approval." This section describes the procedures which shall be used to implement this requirement and to provide for the routine management of the General Program's budget and expenditures.

The General Program's budget comprises tasks that are categorized either as providing "deliverable products" (which are unique to each fiscal year) or "on-call services" (which are typically budgeted for each fiscal year). Action plans shall be used to specify the budget, service/deliverable, and schedule for each budgeted task.

The funds budgeted for the completion of a deliverable product include all moneys necessary for the completion of the product. These funds shall remain available as necessary throughout the completion of the task. If the task is not completed within the fiscal year budgeted, the remaining funds within that task shall automatically roll over to the next fiscal year for continued work on that task. Consistent with No. 3 below, such funds shall only be used for the completion of the task(s) for which they were originally budgeted, unless modified by the Management Committee.

Funds budgeted for on-call services include all moneys necessary for the delivery of the specific on-call services. On-call services shall be budgeted each fiscal year. Action plans for on-call services shall require the completion of the service no later than the end of the first quarter of the subsequent fiscal year. Funds for on-call services that have not been incorporated into an approved action plan by the end of June for each fiscal year, shall not be carried forward or rolled over to the next fiscal year, unless specifically directed by the Management Committee to do so.

Other Management Committee responsibilities:

1. Approve the total annual General Program budget and any subsequent modifications to the total;

2. Determine the initial allocation of the annual General Program budget among the Plan's components; and

3. Approve any budget changes among program components and any significant changes in scope and/or budget within a component. A significant change in scope and/or budget is considered to be twenty percent or greater of the component amount; a change of substance which affects a product or deliverable; a substantial

delay in the planned completion of a deliverable product as determined by the task leader of the subcommittee responsible for oversight of that task; or a change which is highly sensitive to any participating entity of the ACCWP.

Program Administrator (District) responsibilities:

1. Determine individual task budgets and adjustments within the program components provided there are no substantial changes in scope. If there are substantial changes in scope the appropriate subcommittee for the component or Policy Level Subcommittee shall approve substantial scope changes and determine if the changes are sufficient to warrant approval by the Management Committee;

2. Approve action plans and modifications to action plans consistent with No. 1; and

3. Inform the Management Committee of the status of individual task implementation on a quarterly or more frequent basis.

Section 12. Procedures for Identifying, Prioritizing, Budgeting, and Managing Special Studies

1. All special studies shall be funded from the Focused Watershed Management Approach (Component 3) and/or the Monitoring and Special Studies (Component 4) budgets.

   - Other subcommittees, therefore, do not need to budget for special studies in their components;

   - If another subcommittee wishes to have a special study funded with moneys in its own component, it shall have that money transferred to the Components 3 or 4 budget.

2. Other subcommittees shall propose detailed ideas for special studies to the Monitoring and Special Studies (MSS) Subcommittee during the time that fiscal year budgets are being proposed.

   - These proposals shall be submitted in writing and must include the desired results of the proposed study.

3. Each special study (those proposed by other subcommittees and those proposed by the MSS Subcommittee) shall be prioritized by the MSS Subcommittee based on the merits of each requested study and benefits to the program, as well as funding availability.

4. All approved special studies, regardless of their origination, shall be managed by the MSS Subcommittee in consultation with the subcommittee requesting the study.

   - The District shall assign a General Program task leader (or "facilitator") to every

project.

- The Technical Consultant to the General Program shall perform the work, unless otherwise directed by the MSS Subcommittee.

- The task leader will be responsible to the MSS Subcommittee on all matters regarding the special study. In particular, the task leader shall:

  a. Present a schedule for project completion to the MSS Subcommittee for approval at the start of the project. This schedule shall include milestones such as subcommittee updates, draft product submittal to the appropriate subcommittee(s), and presentations by consultants to the subcommittees and/or Management Committee.

  b. Facilitate the work of the project with the subcommittee requesting the project. Specify in the project completion schedule what input the subcommittee will have in reviewing drafts of the project report.

  c. Bring all significant changes in budget and/or scope of the project (whether requested by the Consultant or the subcommittee requesting the special study) to the MSS Subcommittee for approval. The definition of a significant change is consistent with the definition provided in Section 11 of the ACCWP's Bylaws. Other changes should be disclosed during project updates to the Subcommittee.

  d. Coordinate submittal of all review comments to project report(s) and ensure their incorporation into the final product.

5. The MSS Subcommittee will review and reach agreement on project conclusions and implications for management (with input from the subcommittee requesting the special study), and will be the subcommittee which finally recommends the project to the Management Committee for acceptance at its completion.

Section 13.Procedures for PI/P Subcommittee Activities

Subsection 13.1 Language Translation

General education products intended for wide distribution to residents of Alameda County shall be translated into Spanish. Decisions related to the quantities of translated materials to print shall be based on demographic data. Products targeted for commercial, industrial, construction, and other activities shall be developed in English only, except in special circumstances where the target audience is substantially non-English speaking.

Subsection 13.2 PI/P Subcommittee Support for Other Plan Components

Subcommittees are encouraged to work with the PI/P Subcommittee on public

information and outreach activities they are planning in order to achieve the following:

1. Identify the appropriate roles and responsibilities of each subcommittee for the particular public information and outreach activities contemplated;

2. Ensure that public information products produced by and for the Alameda County Clean Water Program have a consistent image that clearly identifies and credits the program;

3. Coordinate the development and distribution of public information products in order to maximize their effectiveness and to avoid duplication, conflict, and inefficiencies;

4. Evaluate the effectiveness of public information products; and

5. Track public information products for sharing with other agencies and reporting to the Regional Water Quality Control Board.

Subsection 13.3 Cost Allocation

The approach is for the General Program to pay for the printing of an initial allotment for each municipality of all products (including language translations), and municipalities will pay for any additional copies they need beyond their initial allotments. The initial allotments will be based on objective criteria regarding the size of the target audience in each municipality (e.g., overall population, number of industries, etc.) and the number of products expected to be needed over the next two years. The advantages of this approach are:

1. All municipalities will receive all products, which will provide them the opportunity to fully participate in the PI/P effort;

2. The General Program will be able to more accurately budget the printing costs for each product and will be able to minimize the time spent collecting contributions from each municipality;

3. Municipalities will pay for most PI/P products as part of their contributions to the General Program and will not have to authorize separate payments for PI/P products very often.

Municipalities may request special tailoring of printed materials for their use. All costs associated with these special modifications shall be paid for entirely by the municipality(ies) making the request.

ATTACHMENT A

FY 1992/93 THROUGH 1996/97 VOTING AND GENERAL PROGRAM COST SHARE PERCENTAGES

Alameda County Urban Runoff Clean Water Program

FY 1992/93 through 1996/97 Voting and General Program Cost Share Percentages

Municipality	Share
Alameda	4.69
Alameda County	9.37
Albany	0.81
Berkeley	5.82
Dublin	2.34
Emeryville	0.43
Fremont	17.20
Hayward	11.60
Livermore	5.59
Newark	2.95
Oakland	23.98
Piedmont	0.72
Pleasanton	4.50
San Leandro	4.86
Union City	5.15
Total:	100.00

EOA, Inc.

March 20, 1992

Appendix E

APPENDIX E

SUMMARY OF RELEVANT REGULATORY PROGRAMS/POLICIES

The following provides brief descriptions of regional, state, and federal regulatory requirements and programs that developed during the time period of the initial NPDES permit.

Regional, State and Federal Regulatory Requirements

S.F. Bay Regional Board Copper Mass Loading Reduction Policy: To comply with the S.F. Bay Regional Board's proposed site specific water quality objective for copper, a copper mass loading reduction policy was adopted as an amendment to the Basin Plan by the Regional Board in June 1993. The policy required all Bay Area stormwater quality control programs to reduce annual copper loadings by 20% by the year 2001: In Alameda County, the current estimated annual copper loading of 13,400 pounds would be required to be reduced by 2,700 pounds. However, the Regional Board's policy was returned by the State Water Resources Control Board (State Board) to the Regional Board for further consideration. The State Board's impasse with adopting this policy occurred when two Statewide Plans (*Enclosed Bays and Estuaries* and *Inland Surface Waters*) containing water quality objectives for copper and other pollutants were overturned in court. The State Board anticipates adopting new Statewide Plans by the end of 1997. One of the major considerations affecting whether this policy will be reinstituted is the water quality objective for copper in San Francisco Bay.

S.F. Bay Regional Board Staff Recommendations for New and Redevelopment Controls for Storm Water Programs (Staff Recommendations): The Regional Board staff prepared recommendations for the control of pollutants from new and redevelopment projects in April 1994. The Staff Recommendations incorporate CCMP actions and CZARA management measures (see pages 2-3) pertinent to new development. Municipalities are expected by the Regional Board staff to integrate the policies and practices in the *Staff Recommendations* (e.g., addressing stormwater quality issues during the environmental review phase, improving construction site inspections) as appropriate for their jurisdiction. Stormwater quality control programs are required to report their progress in implementing the *Staff Recommendations* in annual reports due September 1994, 1995 and 1996. In reviewing the *Countywide Program's* 1994/95 annual report, the Regional Board staff found that twelve cities and unincorporated Alameda County had acceptable programs and two cities had conditionally acceptable programs.

Bay Protection and Toxic Cleanup Program (BPTCP) and Regional Monitoring Program (RMP):

BPTCP: The State Board initiated the BPTCP in response to State legislation enacted in 1989 which required the State Board to develop and implement a monitoring plan to identify and prioritize "toxic hot spots" and develop remediation plans for priority sites. However, due to a lack of revenue, the State Board has focused the BPTCP on

throughout the Bay Area organized to form the Bay Area Stormwater Management Agencies Association. Furthermore, the California Stormwater Quality Task Force, initially formed in 1990 to assist the State Board implement the stormwater program, expanded its activities. Representatives of the *Countywide Program* actively participate in both organizations.

California Stormwater Quality Task Force (Task Force): The Task Force meets bi-monthly at various locations throughout the State and has established four committees (Public Information/Participation, Implementation, Stormwater Science and Standards, and Legislation, Policy and Regulations) to implement activities and respond to issues of statewide interest. Examples of committee activities include providing information on the reauthorization of the Clean Water Act, conducting surveys of municipal program activities, and developing a public/private partnership for distributing educational materials.

Bay Area Stormwater Management Agencies Association (BASMAA): Created in 1989, BASMAA coordinates stormwater quality control efforts and responds to issues of regional significance. BASMAA hired an Executive Director in 1994 to help facilitate meetings and obtain sponsorship for special projects. In addition to monthly BASMAA Committee meetings, four subcommittees also meet routinely: Public Information/Participation, New Development, Monitoring, and Operational Permits. Recently, BASMAA finalized and distributed BMPs for contractors (Blueprint for a Clean Bay), and hired consulting firms to develop a pilot source control program for mobile cleaners and prepare a Site Planning and Design Guidance Manual for Residential Development. It is also preparing to initiate a three-year regional advertising campaign.

DECLARATION OF SERVICE BY EMAIL

I, the undersigned, declare as follows:

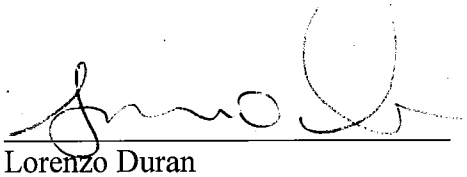
I am a resident of the County of Sacramento and I am over the age of 18 years, and not a party to the within action. My place of employment is 980 Ninth Street, Suite 300, Sacramento, California 95814.

On December 21, 2016, I served the:

CRWQCB Response to the Request for Additional Briefing
California Regional Water Quality Control Board, San Francisco Bay Region, Order No. R2-2009-0074, Provisions C.2.b, C.2.c, C.2.e, C.2.f, C.8.b, C.8.c, C.8.d, C.8.e.i, ii and iv, C.8.f, C.8.g, C.10.a.i, ii, and iii, C.10.b, C.10.c, C.10.d, C.11.f, and C.12.f,
10-TC-01, 10-TC-02, 10-TC-03, and 10-TC-05
Cities of Alameda, Brisbane, and San Jose, and County of Santa Clara, Claimants

By making it available on the Commission's website and providing notice of how to locate it to the email addresses provided on the attached mailing list.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on December 21, 2016 at Sacramento, California.



Lorenzo Duran
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COMMISSION ON STATE MANDATES

Mailing List

Last Updated: 12/2/16

Claim Number: 10-TC-01, 10-TC-02, 10-TC-03, and 10-TC-05

Matter: California Regional Water Quality Control Board, San Francisco Bay Region, Order No. R2-2009-0074, Provisions C.2.b, C.2.c, C.2.e, C.2.f, C.8.b, C.8.c, C.8.d, C.8.e.i, ii, and iv, C.8.f, C.8.g, C.10.a.i, ii, iii, C.10.b, C.10.c, C.10.d, C.11.f, and C.12.f

Claimant: Cities of Alameda, Brisbane, and San Jose, and County of Santa Clara

TO ALL PARTIES, INTERESTED PARTIES, AND INTERESTED PERSONS:

Each commission mailing list is continuously updated as requests are received to include or remove any party or person on the mailing list. A current mailing list is provided with commission correspondence, and a copy of the current mailing list is available upon request at any time. Except as provided otherwise by commission rule, when a party or interested party files any written material with the commission concerning a claim, it shall simultaneously serve a copy of the written material on the parties and interested parties to the claim identified on the mailing list provided by the commission. (Cal. Code Regs., tit. 2, § 1181.3.)

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